GAINS
MOVE FORWARD FASTER

Whitepaper

Mastering Seasonality

Why Traditional Forecasting Falls Short—And How GAINS DEO Transforms Seasonality from a Liability into a Strategic Advantage

The Hidden Challenge of Seasonality

Everyone knows, supply chain leader or not, that demand fluctuates—but not all fluctuations are created equal. When thinking about "seasonal products," most of us think of snow shovels in winter and patio furniture in spring. But seasonality is more than just a consumer phenomenon. If not managed properly, seasonal patterns can create major operational swings in inventory levels, transportation needs, and production cycles.

The Cost of Seasonal Misalignment

Seasonal mismatches between demand and supply chain readiness may result in:

- **Stockouts** during critical times of the year
- **Overstocks** and costly price markdowns post-season
- **Inefficient labor and logistics planning** leaving items sitting on a dock
- **Excess working capital** tied up in inventory

According to Maersk, **retailers and suppliers that fail to optimize for seasonal shifts risk losing market share to faster, more adaptive competitors**.

As global volatility and uncertainty increase, relying on gut feel or last year's numbers is no longer an option. Yet many supply chain pros still attempt to manage seasonality with outdated, insufficient tools, struggling with static rules, or incomplete forecasts, ultimately paying the price in stockouts, markdowns, and missed opportunities.

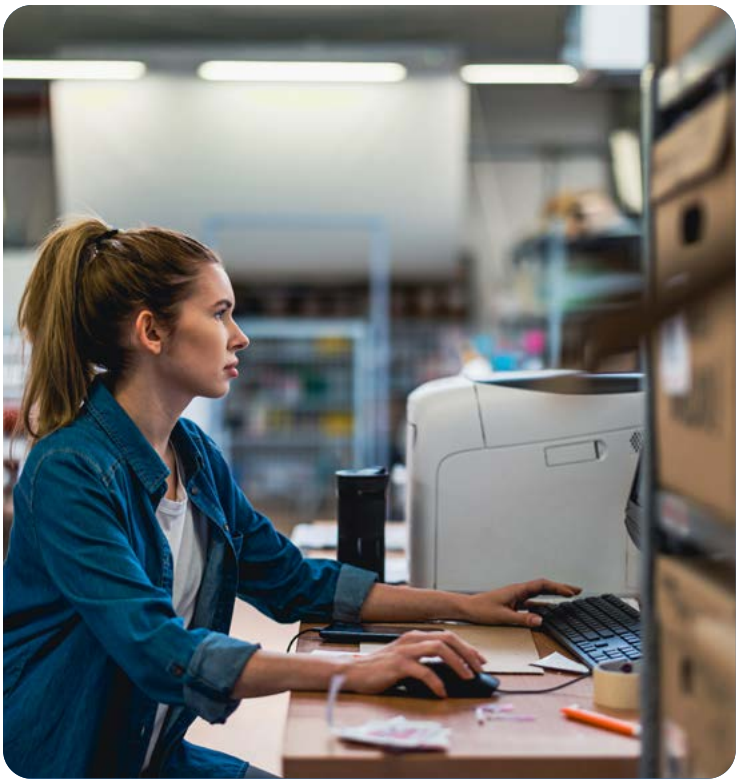
Time to rethink the playbook.

Seasonal planning must-haves:

1. The ability to map your SKU-level demand curves by month
2. Incorporate non-Gregorian holidays (like LNY) into planning
3. Replace flat safety stock targets with deviation-aware models
4. Simulation tools that can preview seasonal risk

Traditional Methods Fall Short

Many legacy supply chain solutions still find themselves lacking when it comes to managing seasonality. That's because static-traditional tools and planning paradigms weren't built to handle the dynamic, time-sensitive nature of seasonal demand patterns—let alone global holiday disruptions like Lunar New Year.



Static methods are a liability, creating a false sense of control

Traditional methods create the illusion of precision but ignore the forces that matter most—variability, volatility, and timing. Without real-time feedback loops or simulation capabilities, planners can't respond to near-term signals or validate assumptions before taking action. **That's how companies end up overbuying to hedge, underbuying and losing sales, or doing both—across different SKUs, all in the same season.**

4 Key seasonal functions traditional methods lack

1. Rigid Safety Stock Rules Ignore Cyclical Patterns

Most systems apply static safety stock policies based on outdated historical averages. These methods assume demand and lead times are stable, which is rarely the case. Seasonal SKUs—like snow shovels, sunscreen, or holiday-themed goods—may require drastically different service levels each month. Without month-level precision, companies either carry too much inventory in slow months or too little when demand spikes.

2. Lack of Granularity in SKU-Level Demand Curves

Traditional models oversimplify demand forecasting, often using category-level planning or smoothing methods that obscure SKU-level variation. But not all SKUs follow the same seasonal rhythm. A red sweater may sell well in December, while the same item in an alternative color might underperform. **Without granular modeling, planners miss these nuances—and miss revenue opportunities.**

3. No Visibility Into Shifting Service-Level Needs

Service-level targets should flex with business priorities and seasonality. But most systems treat them as fixed inputs, making it impossible to adjust for promotional windows, margin thresholds, or customer expectations during peak seasons. The result? Missed SLAs, stockouts, and overstock penalties during critical periods.

4. Limited Ability to Simulate Seasonal Disruption

Traditional tools can't simulate the operational impact of major seasonal disruptions—like factory closures during Lunar New Year or last-mile delivery congestion during the holidays. Without simulation, planners are forced to guess. That guesswork often leads to over-ordering "just in case" or freezing plans altogether, locking in inefficiency and risk.

The GAINS Advantage: DEO

GAINS' Decision Engineering & Orchestration (DEO) platform changes the game by embedding advanced algorithms and artificial intelligence at every layer of decision-making.

Instead of treating seasonality as an anomaly, GAINS designs for it.

Capability	Traditional Methods	GAINS DEO Approach
Service Stock Planning	Flat, annualized targets	Time-phased monthly values customized per SKU
Forecast Sensitivity	Reactive to demand shifts	Predictive modeling with seasonal deviation factors
Holiday Impact	Generic or ignored	Embedded cultural calendars (e.g., LNY) with simulation
Replenishment	Manual overrides	Automated, ML-adjusted replenishment strategies
Scenario Planning	Excel-based, siloed	End-to-end simulation of inventory, transport, and service impacts

Core Seasonal Components of GAINS DEO:

- **Monthly Service Stock (SS) Values**: Customizes inventory targets per month per SKU based on historic demand curves, seasonal uplift, and business priorities.
- **Absolute Deviation (AD)**: Measures forecast uncertainty and guides safety stock dynamically, improving precision where volatility is high.
- **Forecast Integration**: Combines internal sales projections, market signals, and external events (like LNY or weather anomalies).
- **Adaptive ML Algorithms**: Continuously learn from changing demand and supply patterns to refine stocking and ordering policies.
- **Composable Architecture**: Integrates into existing systems and workflows without requiring a complete solution rip-and-replace.

Case in Point: Continental Battery Systems

The "battery business" means living with the seasons. Automotive batteries fail most often in the coldest days of winter. Come spring, lawn mowers, ATVs, golf carts, and boats all come out of storage, and with them a wave of dead or sluggish batteries. By summer, recreational use is in full swing and demand stays high, before tapering off in the fall as equipment is put away again. In other words, batteries don't sell at a steady pace year-round or even year to year—they spike when the weather changes and when people pull machines out of storage. That reality makes inventory management tricky for any distributor. **Continental Battery Systems (CBS)** has thrived in this environment by embracing the seasonal nature of its business and ensuring they have the right products in the right places at the right time.

Relying on a traditional supply chain design couldn't help CBS anticipate these swings. What they needed was a flexible design that could handle predictable seasonal shifts and unexpected disruptions. abuilt exactly that. By modeling multiple futures and testing different scenarios, they could balance efficiency with resilience — preparing not just for a single outcome, but for many.

The results:

40% inventory reduction without sacrificing service

10—14% operational cost savings

Fill rates improved from the mid-60s into the **high 80s and 90s**

10-13% working capital reduction while streamlining logistics

Instead of overstocking to guard against spikes or understocking and disappointing customers, CBS now flexes capacity and inventory policies with confidence.

Turn Your ability to manage Seasonality into Your Strategic Advantage

Whether it's spring break surges, summer demand spikes, or Lunar New Year slowdowns, GAINS equips your supply chain with the tools to adapt early, simulate rapidly, and orchestrate decisions across time horizons.

Predicting the future is impossible. Preparing for the future is essential.

Let's talk.

See how GAINS DEO can transform your seasonal planning.

Schedule a meeting with a GAINS expert.

Download our full DEO capabilities overview.

"What Makes a SKU Seasonal?"

Seasonal SKUs aren't just about holidays or weather—they're defined by patterns of demand that rise and fall predictably throughout the year.

- **Tied to Weather**: Cold snaps, heat waves, or storms trigger demand (e.g., car batteries in winter).
- **Storage Effect**: Products pulled out after months of idle time often need replacement (e.g., lawn mowers, marine batteries).
- **Usage Cycles**: Recreational and outdoor gear peaks in warmer months (e.g., golf carts, ATVs).
- **Holiday / Event Driven**: Demand spikes around specific annual events (e.g., fireworks, Halloween costumes).
- **Regional Variability**: The same SKU may be "in season" at different times depending on geography.

Let's Move Forward Faster.

Drive Results. Engineer Your Advantage and orchestrate smarter decisions—together.

Contact GAINS today