



BLUE RIDGE

EBOOK

# Four Ways AI & GenAI Are Transforming Inventory Planning

Unlocking faster, more resilient decisions  
across forecasting, replenishment, and supply  
chain planning.

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# INTRODUCTION

## Traditional Supply Chain Approaches Are Reaching a Breaking Point

Volatile demand. Persistent labor shortages. Geopolitical uncertainty. Rising customer expectations. All these pressures are converging, and they're exposing the limits of static tools and manual workflows. Supply chain disruptions, volatility, and complexity have become the norm, not the exception.

## With Complexity Comes an Unprecedented Opportunity

Artificial intelligence (AI), an umbrella term that includes machine learning (ML) and emerging capabilities like Generative AI (GenAI), is becoming a transformational force that helps supply chain teams move from reactive to predictive, from fragmented to connected. As companies adapt to more frequent shocks, AI and GenAI are emerging as essential capabilities to build resilience, protect margins, and stay competitive. Early adopters are already gaining an advantage, while laggards risk falling behind.

## Go Beyond AI with GenAI

While some see AI as hype, the reality is that leading companies are already applying it to reduce forecast errors, improve margins, and build more resilient operations. While traditional AI (which we'll refer to as "AI") has focused on analyzing structured data to improve forecasting and optimization, GenAI takes it further by:

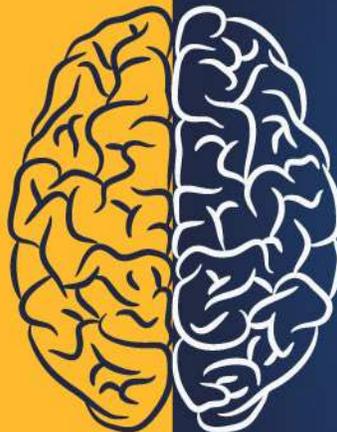
- Creating new content and recommendations automatically
- Producing draft purchase orders
- Generating plain-language explanations
- Making quantitative analysis accessible to everyone

Unlike past waves of automation, AI and GenAI together unlock new capabilities. AI models forecast demand with richer signals and automate replenishment decisions in real time. GenAI goes further by generating narrative insights, creating draft actions, and helping teams evaluate options with more clarity and speed.

### Traditional AI

Uses structured data and machine learning to forecast demand, optimize replenishment, and automate decisions faster than manual methods.

- Structured data only
- Numeric forecasts
- Replenishment recommendations
- Alerts & exception flags
- Requires manual interpretation



### Generative AI

Builds on predictive AI by incorporating unstructured data (news, social sentiment, supplier updates) and generating natural language outputs.

- Structured + unstructured data
- Forecasts + narrative explanations
- Draft purchase orders with rationale
- Proactive planning in plain language
- Ready-to-use insights and actions

# Four Ways AI and GenAI Can Boost Your Inventory Planning Right Now

This eBook explores four practical ways AI and GenAI are transforming inventory planning today, and how you can start translating this innovation into results for your business.

1. Smarter Demand Forecasting
2. Automated Replenishment Recommendations
3. Natural Language Access to Insights
4. Faster Collaboration & Reporting



Companies using AI in supply chain planning can reduce forecasting errors by up to 50%.

Source: McKinseyLink



By 2026, Gartner® predicts that more than half of supply chain organizations will invest in AI.

Source: GartnerInsight

# 1. Smarter Demand Forecasting

## The Challenge

Forecasting demand has always required both analytical tools and human judgment, but in today's dynamic markets, methods that rely only on past patterns (e.g., ERP) or are overly manual and static (e.g., spreadsheets) often fall short. Demand can shift overnight due to viral trends, severe weather events, supply chain disruptions, or changes in consumer preferences. Historical data alone doesn't capture these signals in time to act. As a result, planners spend hours adjusting forecasts, investigating why products ran out or piled up, and trying to prevent the same issues from recurring.

## How AI & GenAI Help

AI forecasting has significantly improved this process over the past decade. Advanced ML algorithms ingest large volumes of structured data and detect complex relationships that traditional statistical methods often miss. These types of structured data include:

- Sales history
- Seasonality patterns
- Promotions
- Channel-level transactions

These AI models can produce probabilistic forecasts that estimate a range of potential outcomes, quantify uncertainty, and automatically adjust predictions as new transactional data becomes available. By continuously learning from fresh data, AI forecasting engines help planners reduce bias and respond to changes faster than manual methods alone.

GenAI approaches this challenge by expanding beyond numeric and structured data to also include unstructured content that influences demand in real time. Large language models process this unstructured text to extract relevant information, such as references to emerging trends, product recalls, or regulatory changes, and incorporate it into demand forecasts automatically.



*Caused by traditional time-series forecasting methods<sup>1</sup>*

### Forecasting errors drive:

- Excess inventory
- Lost sales
- Working capital constraints<sup>1</sup>

## What This Means for the Future

Instead of depending solely on internal data and pre-coded variables, GenAI platforms will soon ingest live inputs such as social media discussions, news articles, supplier bulletins, and economic reports.

Advanced ML architectures, including transformer-based models, correlate structured and unstructured signals to detect patterns and dynamically adjust forecasts. In addition to numeric projections, GenAI, when prompted, can deliver narrative explanations summarizing why forecasts have shifted and what trends planners should look deeper into. Planners can then compare these explanations to gain confidence in their understanding of the forecasts to evaluate whether and how to adjust inventory plans, safety stock policies, or promotion strategies. By integrating these narrative insights into their workflows, teams can communicate assumptions more clearly and align decisions across functions more quickly.

### Real-World Applications

In many distribution, manufacturing, and retail environments, incorporating external signals has improved responsiveness and forecast accuracy.

- Grocery retailers integrating weather forecasts and local news coverage could see more precise demand predictions during seasonal events. When unseasonably warm weather combined with local festival coverage drives early beverage sales, GenAI models can revise projections within hours, enabling planners to adjust orders before shelves run empty.
- By using GenAI to analyze market commentary, distributors can reduce the frequency of manual forecast overrides and improve alignment between sales and supply chain teams.

### Benefits Summary

Over time, these capabilities reduce reliance on static spreadsheets and delay reports. Instead, planners can receive automated updates and narrative insights that explain key drivers and recommend actions.



**CUT 5%  
OF COSTS**

Even modest forecast improvements can lower inventory costs by about 5%.<sup>2</sup>



**ENHANCE REVENUE**

**2-3%**

Better forecasting can drive 2–3% revenue growth by improving fill rates and minimizing stockouts.<sup>2</sup>

<sup>1</sup>McKinsey & Company. [AI-driven Operations Forecasting in Data-Light Environments](#).

<sup>2</sup>McKinsey Global Institute. [Most of AI's business uses will be in two areas](#).

## 2. Automated Replenishment Recommendations

### The Challenge

Inventory replenishment has long been a reactive and resource-intensive process that requires planners and buyers to analyze demand signals manually and make frequent judgment calls to maintain stock levels. As demand shifts and supply constraints emerge, even experienced teams can struggle to keep inventories aligned with customer needs. Conventional ERP and planning systems often rely on static reorder points, lead time assumptions, and historical consumption averages that do not adapt quickly to volatile conditions. This can result in excess inventory, product spoilage, and service level failures that erode margins.

### How AI & GenAI Help

AI-powered replenishment systems have evolved to address many of these limitations by continuously analyzing structured data streams such as sales transactions, on-hand inventory, and supplier lead times. ML models detect patterns and recommend optimal reorder quantities to maintain service levels while minimizing excess stock. These capabilities have helped companies automate routine replenishment decisions and reduce reliance on static planning cycles.

GenAI takes this further by blending structured data with real-time, unstructured insights that shape supply and demand. By processing unstructured data, large language models could uncover early indicators of potential disruptions, like manufacturing setbacks or logistics bottlenecks, and embed these insights directly into replenishment workflows.

In addition to generating recommendations, GenAI systems can:

- Create draft purchase orders pre-populated with quantities, delivery dates, and suppliers
- Produce plain-language narratives explaining why an order was generated and which variables contributed most to the decision
- Give planners transparency to help validate proposals quickly and communicate rationale to stakeholders



### REDUCED INVENTORY

# 20-30%

By driving better demand prediction and dynamic replenishment, AI-driven inventory processes can reduce inventory levels by 20-30% and help minimize excess stock while maintaining product availability.<sup>1</sup>

## Real-World Applications

In many retail, wholesale, and manufacturing environments, companies have used AI and GenAI to improve replenishment precision and lower manual workload.

- For example, a mid-sized industrial manufacturer can implement GenAI to optimize raw material ordering. By integrating production schedules, supplier lead times, and real-time demand forecasts from downstream distributors, the system can dynamically adjust replenishment quantities when customer orders are accelerated during a regional infrastructure project. This could help maintain production continuity without overcommitting working capital to excess materials.
- In grocery distribution, systems that combine weather forecasts, local news coverage, and social sentiment with demand history could be used to detect shifts in replenishment needs for perishable goods. When an unexpected spike in demand for seasonal products occurs, the model could recalibrate recommended purchase orders and generates a narrative justification that planners or buyers can review and approve. These capabilities reduce time spent chasing exceptions and improve alignment between supply and demand.
- Instead of relying on periodic planning cycles and manual overrides, teams receive automatically highlighted shifts, along with draft orders and easy access to forward buy or cost-of-service analyses that can be finalized in hours rather than days.



### LESS EXCESS STOCK

# 15-30%

Dynamically adjusting safety stock in response to real-time variability can lower excess stock by 15-30%.<sup>2</sup>

### Benefits Summary

Over time, incremental gains in replenishment accuracy can help reduce working capital tied up in excess inventory and improve product availability, supporting both cost efficiency and customer satisfaction.

<sup>1</sup> McKinsey & Company. [Harnessing the Power of AI in Distribution Operations](#).

<sup>2</sup> McKinsey & Company. [AI-driven operations: Forecasting in data-light environments, 2022](#).

# 3. Natural Language Access to Insights

## The Challenge

One of the most persistent challenges in supply chain operations is translating large volumes of fragmented data into timely, actionable insights. When disruptions occur, such as unexpected backorders, shipment delays, or service level drops, planners often spend days consolidating spreadsheets, querying ERP systems, and preparing reports to diagnose the root cause. This manual process delays response and increases the risk that critical patterns are missed or recognized too late to mitigate the impact.



Only about 50% of supply chain leaders rate their planning data quality as sufficient or high, highlighting how limited data access and analytics capabilities continue to hinder effective decision-making.<sup>1</sup>

## How GenAI Help

GenAI removes these bottlenecks. Instead of relying on predefined reports or complex BI dashboards, planners and managers can ask free-form questions like:

- Which suppliers contributed most to late deliveries last quarter?
- What is the forecasted impact of the port closure on our top revenue SKUs?
- Why did we stock out on this item last week?
- What are the key forecast accuracy metrics for this item's current forecast?
- What adjustments can I make to the forecast or demand history to better reflect the intermittent nature of this item's demand?
- Give me a short narrative (2–3 sentences) explaining the forecast that I can share with a stakeholder who isn't familiar with our forecasting process.

GenAI can parse the query, extract relevant data across connected sources (i.e. WMS, TMS, and ERP), and return a clear, contextual response. This approach reduces the need for technical skills and makes analysis accessible to a wider range of users.

## Real-World Applications

In practice, companies are using these capabilities to accelerate root-cause analysis and improve cross-functional collaboration.

- A major building-products distributor adopted an AI-driven control tower enhanced with a GenAI chatbot. This enabled planners to ask natural-language questions, such as “Which suppliers are most likely to miss delivery targets this week?” or “What’s driving fill rate variability in the Midwest?”, and receive instant, data-backed answers. The system aggregated information from inventory records, supplier portals, shipment-tracking feeds, and external logistics updates to produce clear, actionable insights. By automating data gathering and analysis, the distributor achieved a 5–8% improvement in fill rates while freeing planners from time-consuming manual reporting and investigations.<sup>2</sup>
- In consumer goods distribution, companies have adopted GenAI-powered query tools to improve visibility and responsiveness during promotional campaigns. For example, planners can ask natural-language questions such as “Which customers are experiencing the highest stockout rates this week?” and receive a prioritized list of impacted accounts, along with specific factors contributing to each issue, like fulfillment constraints or unexpected demand spikes.
- According to The Wall Street Journal, companies implementing AI-enabled control towers and conversational interfaces have achieved 15–20% faster responses to supply chain disruptions, helping teams act before service levels erode.<sup>3</sup>

### Benefits Summary

By making complex data accessible in everyday language, GenAI helps supply chain teams diagnose issues faster, understand forecast changes, and share findings across the organization without the need from an analyst. Over time, this capability builds organizational confidence in data, shortens cycle times, and supports more proactive decision-making in a dynamic environment

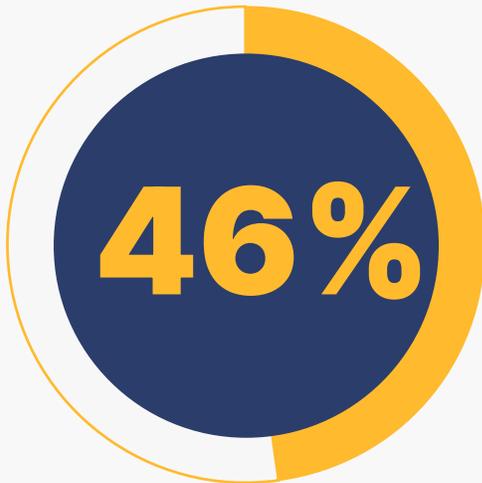
<sup>1</sup> McKinsey & Company. [5 Supply Chain Data Sharing Barriers & Best Practices](#).

<sup>2</sup> McKinsey & Company. [Harnessing the power of AI in distribution operations](#).

## 4. Faster Collaboration & Reporting

### The Challenge

Effective supply chain execution requires coordination among diverse teams, including planners, procurement, logistics, sales, and finance. When teams operate with inconsistent or outdated information, misalignment can lead to overordering, service disruptions, or excess working capital locked in inventory.



46% of supply chain leaders say that siloed data and disconnected teams prevent them from establishing effective end-to-end supply chain processes.<sup>1</sup>

### How AI & GenAI Help

GenAI improves cross-functional collaboration by enabling planners and buyers to easily create tailored and real-time reports. Instead of static monthly updates or manual data pulls, GenAI can continuously monitor operational data streams such as supplier performance, inventory turnover, fulfillment metrics, and customer orders, and translate them into targeted summaries for different stakeholders. For example, planners receive SKU-level replenishment status, while executives see high-level trends and financial impacts. Because outputs would be updated dynamically and presented in clear language, teams can share a consistent understanding of current performance and emerging risks.

Beyond GenAI, broader AI and ML capabilities are also transforming how teams collaborate and act on information. Predictive AI models could analyze historical patterns and live signals to forecast demand changes, supplier delays, or inventory imbalances before they escalate. Prescriptive AI could take this further by recommending specific mitigation actions such as adjusting safety stock, prioritizing critical orders, or rerouting shipments to reduce operational and financial risks.

### A Key Team-Wide Payoff of AI

This proactive intelligence enables teams to make faster, more confident decisions with fewer manual interventions.

## Real-World Applications

Organizations across sectors are putting these capabilities into practice.

- A large pharmaceutical distributor leveraged AI-generated reporting to monitor cold chain compliance across its network of distribution centers. The system analyzed real-time temperature data and shipment status, triggering instant alerts for any deviations and automatically generating exception reports specifying affected lots and customers. This automation improved issue detection and escalation times by approximately 40%, strengthening product integrity and regulatory adherence.<sup>2</sup>
- In consumer-packaged goods, companies could use AI-powered anomaly detection to monitor fill rates and lead times across suppliers. When deviations exceed defined thresholds, predictive models flag the risk and recommend preemptive actions such as securing alternate suppliers or expediting replenishment orders. These insights could help teams reduce stockouts and avoid costly disruptions.



AI-generated automated reports improved a large pharma distributor's issue detection and escalation times by about 40%.<sup>2</sup>

### Benefits Summary

By delivering current, role-specific insights without manual effort and combining predictive foresight with prescriptive recommendations, AI reduces the delays and inconsistencies that often undermine supply chain performance. Over time, this improves responsiveness, strengthens accountability, and supports a culture of shared ownership for results.

<sup>1</sup> Celonis via Chain.io: [Overcoming Data Silos in Global Supply Chains](#)

<sup>2</sup> [Pharmaceutical Cold Chain Logistics in the Age of Artificial Intelligence](#), Pharmaceutical Commerce, October 3 2024.

# Steps to Put AI & GenAI Into Practice

## First Steps to Put AI and GenAI into Practice

While every organization's journey will look a little different, most successful initiatives follow a clear path. Here are four practical steps to help you move from ideas to measurable results in your supply chain.

### 1. Identify Priority Use Cases in Supply Chain Planning

Begin by focusing on areas where AI and GenAI can deliver early impact across your supply chain team. Forecasting, replenishment planning, and exception management are often strong starting points because they involve high volumes of data and frequent decisions that benefit from automation and faster insights.

### 2. Evaluate Data Readiness and Integration Requirements

Reliable recommendations depend on accurate, connected information across your planning, inventory, and supplier systems. Take time to map your critical data sources, assess data quality, and identify gaps. Investing in integration and data cleanup early makes it easier for models to produce outputs that teams trust.

### 3. Select a Supply Chain Technology Partner

Most organizations benefit from working with a proven supply chain planning software provider that has AI and Generative AI capabilities built directly into their platform. Evaluating potential partners early ensures you can align on planning functionality, data integration, and support for change management. The right partner will provide purpose-built tools that embed forecasting, and replenishment planning with AI-powered insights and GenAI-driven explanations. This makes it easier for teams to work more efficiently, trust recommendations, and take action with confidence.

[Here's a guide](#) to help you identify the right partner for your business.

### 4. Pilot and Learn Within Real Workflows

Start with a focused pilot to validate assumptions and demonstrate value in day-to-day planning. Use this phase to test workflows, gather feedback from planners and buyers, and build internal confidence. As teams gain experience, expand gradually to additional use cases and functions.

By approaching adoption in stages, you can reduce complexity, build momentum, and create a strong foundation that makes AI and GenAI a sustainable part of how your supply chain operates.

# Conclusion: Preparing for Success with AI and GenAI

## Embracing AI & GenAI with Confidence

AI and GenAI are not simply the next wave of automation. They represent a fundamental shift in how supply chain teams plan, execute, and adapt. Companies that embed these capabilities into their core processes are already realizing tangible gains, from more accurate forecasts and proactive replenishment to faster issue resolution and better alignment across functions.

Success depends on a foundation of connected, high-quality data and the willingness to reexamine long-standing processes. It also calls for building trust in AI recommendations by ensuring transparency and providing clear, accessible explanations that teams can validate and apply confidently. When implemented thoughtfully, AI and GenAI strengthen human judgment rather than replacing it, equipping planners, buyers, and executives with insights that were once easily out of reach.

Whether you are exploring pilot projects or defining an enterprise-wide strategy, this is the moment to act. The future of resilient, efficient, and adaptive supply chains will belong to those who move beyond static tools and manual workarounds to harness the combined power of AI and GenAI.

If you are ready to see what is possible, contact Blue Ridge to learn how you can put these capabilities into practice with minimal disruption and measurable impact.

See what AI Can Do

The future of supply chain performance belongs to companies ready to move beyond manual tools and unlock the full potential of AI and GenAI.

## About Blue Ridge

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Blue Ridge is the supply chain software that improves planning precision with an unmatched partnership so you can eliminate guesswork and maximize inventory performance. We empower you with predictive insights and precise buying recommendations based on comprehensive details. You'll always be prepared and in control, ready to make fast and accurate planning decisions. Our software improves cashflow and increases profitability by optimizing spending, increasing service levels, and reducing overstock and lost sales. Our unmatched LifeLine supply chain software coaching enables you to accelerate software adoption and efficiencies while simplifying buying complexity. We'll stand by you so that you can be supply chain invincible. For more information, visit [www.blueridgeglobal.com](http://www.blueridgeglobal.com)

# Appendix

## Where AI & GenAI Are Already Creating Value

AI has been transforming supply chain planning for years through ML and advanced analytics. Now, GenAI is expanding these capabilities by making insights accessible in everyday language, incorporating additional streams of information into the forecast, and drafting actions that teams can validate and execute.

Together, AI and GenAI are changing how supply chains operate, from improving forecast accuracy and optimizing fulfillment to making complex decisions easier to understand and act on. Across the supply chain, software providers are embedding both AI and GenAI to help companies predict demand, optimize inventory, improve collaboration, and accelerate decision-making.

## Who's Bringing AI and GenAI to Supply Chains?

Below are examples of how AI and GenAI are already being put to work in real-world operations. Whether you're exploring new tools or building existing capabilities, these examples show that combining predictive AI with generative insights can help teams work smarter and respond faster.

Inventory Management	
<b>Blue Ridge</b>	Blue Ridge combines advanced AI forecasting with a GenAI-enabled bot, Blu, that explains predictions in plain language. Planners can ask questions like "Why did demand increase last week?" and get clear, narrative answers to support decisions without relying on technical teams.
Warehouse Management	
<b>Infios</b>	Infios offers integrated AI-powered Warehouse, Transportation, and Order Management capabilities. GenAI tools create plain-language performance summaries, recommended next steps for resolving delays, and proactive alerts about inventory imbalances across facilities.
<b>Infor WMS</b>	Infor uses AI to optimize warehouse processes and GenAI to generate facility review reports in straightforward language. Warehouse managers can track performance, identify bottlenecks, and share insights across teams without interpreting complex dashboards.

Transportation Management	
project44	project44 leverages predictive AI to calculate ETAs and detect risks, while GenAI generates shipment summaries and plain-language explanations of delays. Logistics teams can ask natural language questions like “Which shipments are most at risk this week?” and get immediate, actionable responses.
FourKites	FourKites combines predictive analytics with GenAI to create delivery performance narratives and exception management workflows. Transportation planners receive clear explanations of carrier performance and disruption causes, streamlining collaboration with internal stakeholders and partners.
Sales & E-Commerce in Foodservice	
Pepper	Pepper uses AI to recommend personalized product assortments and forecast order volumes in the foodservice industry. GenAI capabilities draft promotional messages, summarize customer purchasing trends, and generate suggested replenishment orders in natural language, enabling sales teams to engage accounts more effectively.
Procurement & Supplier Management	
SAP Business Network	SAP applies AI to monitor supplier performance and GenAI to summarize unstructured communications. The system reads emails and bulletins, highlighting potential risks and generating recommended next steps automatically.
GEP	GEP’s platform uses AI to assess contract compliance and supply risk, with GenAI capabilities that draft supplier scorecards and negotiation preparation materials in everyday language.