BlueYonder

Fulfill your potential™

The Synchronized Retail Supply Chain

Connected by AI and powered by a single,
dynamic demand forecast

Today's retail conditions demand a fast, intelligent, orchestrated response.

Welcome to the synchronized supply chain.

Extreme market volatility has starkly revealed the weaknesses of the traditional linear supply chain. While we once naively accepted a simple, straightforward movement of products from the supplier to the retail shelf, events such as the blocking of the Suez canal and shortages of labor have demonstrated that the supply chain is bigger, more complex and faster-changing than we ever imagined.

In the face of multiple selling channels, supply and labor shortages, growing competition and the ever-increasing power of consumers, the simple act of sending products to the shelf is fraught with risk and complication. Which channels or stores have the highest consumer demand and the greatest potential margins? What are the associated costs in terms of inventory and handling? Are you cannibalizing other stores, products and channels? Do you have the labor assets ready to move products?

The good news is that advanced artificial intelligence (AI) can help retailers define strategic goals and achieve them quickly and autonomously, no matter the level of supply chain volatility or complexity. Because AI exceeds the cognitive abilities of human planners, it weighs thousands of risks, opportunities and costs to act with speed, strategy and certainty. AI engines can be fine-tuned to support specific goals like increased customer service or margin optimization — and they can make fluid adjustments that actually shape consumer demand as conditions change.

The bad news? Retail teams have been trained to work in functional silos, in parallel, toward narrow functional goals — instead of contributing to a synchronized, fluid process where each decision has a well understood impact on the entire supply chain, and everyone is working toward shared objectives.

Traditional retail teams may be "unified" under the supply chain planning umbrella, but in reality they often work at cross-purposes, supported by diverse forecasts and technology solutions. The traditional retail planning organization is not configured to leverage the full power of AI to synchronize the diverse tasks of replenishment, allocation, category management, pricing and execution with one another, in real-time and with full visibility.

Leap Frog or Level Peg?

This eBook looks at why a traditional "unified" approach might improve your current operational model but won't deliver sustainable speed, resilience and agility. Instead, it suggests an alternative: **a synchronized supply chain, built around AI-enabled processes that positions the entire retail supply chain to sense changes and rapidly pivot, to optimize outcomes.**

unify: (verb) make or become united, uniform, or whole

synchronize: (verb) cause to occur or operate at the same time or rate

The Problem with a traditional "unified" approach

Everyone is working in a group — but are they working together as a team?

Today, too many retail teams are struggling to profitably manage market disruption and volatility, product and labor shortages and other complex challenges because they are functionally siloed. They pull the right levers to reach their functional goals, but they act in isolation, without considering the impacts of their decisions outside their silo.

For example, category managers may focus on filling store shelves — meeting their own functional target — but that often results in high inventory handling costs, high labor costs, and a greater risk of markdowns and waste. Conversely, inventory planners may focus on meeting store level SLAs without considering overall inventory in the network. While each group is focused on maximizing store-level results, they leave less time to focus on the needs of the shopper, which are increasingly a moving target.

In addition to being driven by different goals, these functional groups often use disconnected technology platforms and — even with shared data sources — they have no real basis for collaboration, end- to-end visibility or cross-functional transparency without a seamless user experience and common view of the customer. When their actions negatively impact other team's metrics and the organization's larger results, they rarely realize it. And, when a disruption inevitably occurs, they respond by trying to bring their own functional metrics back on track, without considering the right strategic pivot for the entire supply chain.

Category Manager

I need to meet our sales plan!

Space Manager

I need to fill shelves!

Assortment Management

Merchandiser

I need to maintain margins!

Lifecycle Pricing

Supply Planner

I need to meet my service levels!

Inventory Management

Store
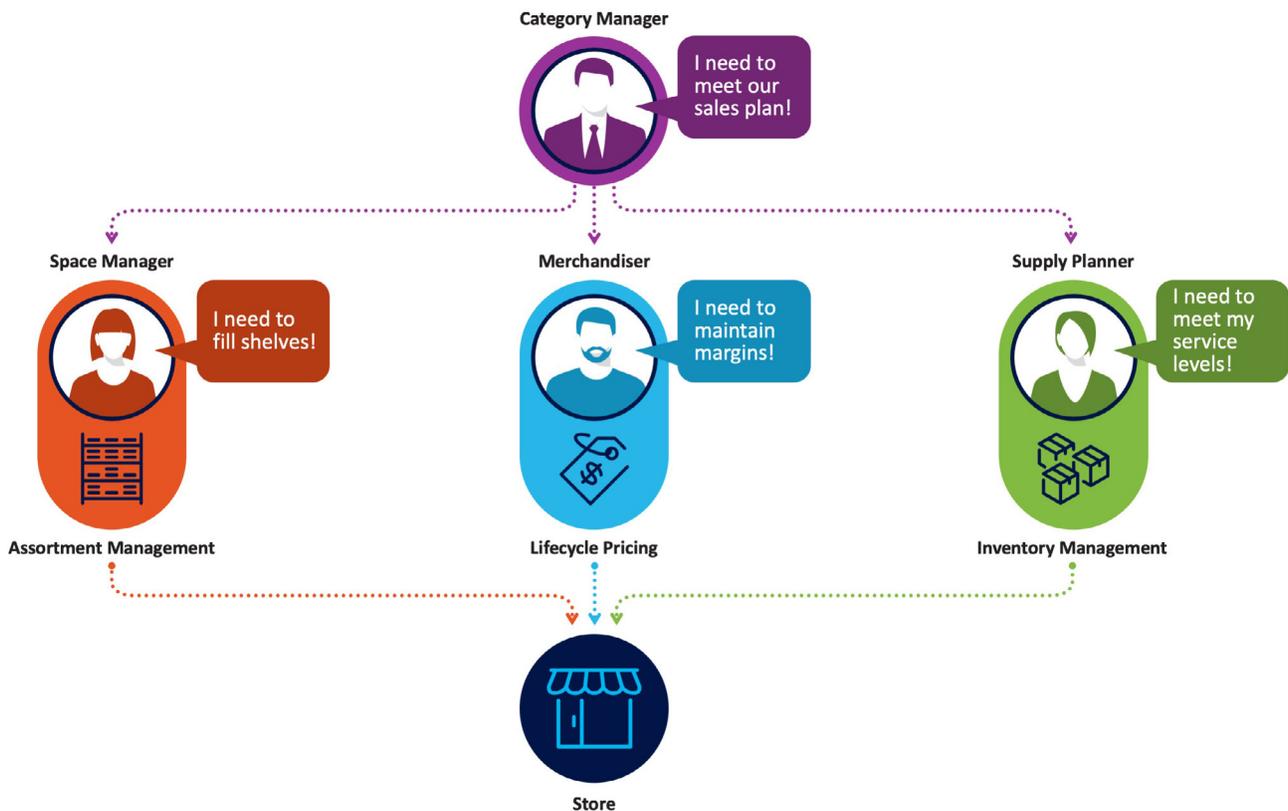
# The Power of a Synchronized Approach

A highly orchestrated, multifunctional team is supported by a single forecast and a common platform.

A narrow functional approach is an outdated concept that fails to answer the overwhelming challenges retailers face in the current omni-channel marketplace. The only way to profitably manage the complicated retail landscape today is via a common technology platform that includes advanced AI and analytics and a wealth of shared internal and external data that enables a common workflow-driven user experience. Functional managers across the end-to-end retail supply chain can use that platform to work toward common goals, guided by a single, dynamic demand forecast. As conditions shift, the entire cross-functional team can pivot synchronously in real-time, with smart automation bringing the entire supply chain back on track.

Unlike narrowly focused functional teams led by human planners, Blue Yonder's AI-enabled optimization engines are capable of seeing the retail supply chain as a connected entity. They can autonomously make optimal decisions in each functional area based on an intrinsic understanding of financial risks and goals, as well as a granular view of inventory, space, capacity, labor and other constraints. They can not only determine the optimal way to fulfil demand, but can also help shape demand.

Blue Yonder AI treats replenishment, allocation, category management, pricing and execution as a synchronized workflow, rather than sequential and siloed processes. Fed by your data and supplemented with external sources, it understands the forces driving consumer behavior — and how those behaviors are

continuously shifting. It shares insights and recommendations across the retail supply chain to strategically inform every functional decision.

By putting a common view of customer demand at the heart of your entire supply chain, it connects planning and execution into a seamless automated workflow, delivering higher and more sustainable benefits than the unified approach alone.

Category Manager: Let's work together to hit our shared goal

Supply Planner

INCREASED REVENUE 5%

REDUCED INVENTORY 12%↓

INVENTORY PLANNING

DEMAND FORECASTING

CUSTOMER

LIFECYCLE PRICING

WORKFLOW

ASSORTMENT MANAGEMENT

Merchandiser

HIGHER SALES ↑5%

Space Manager
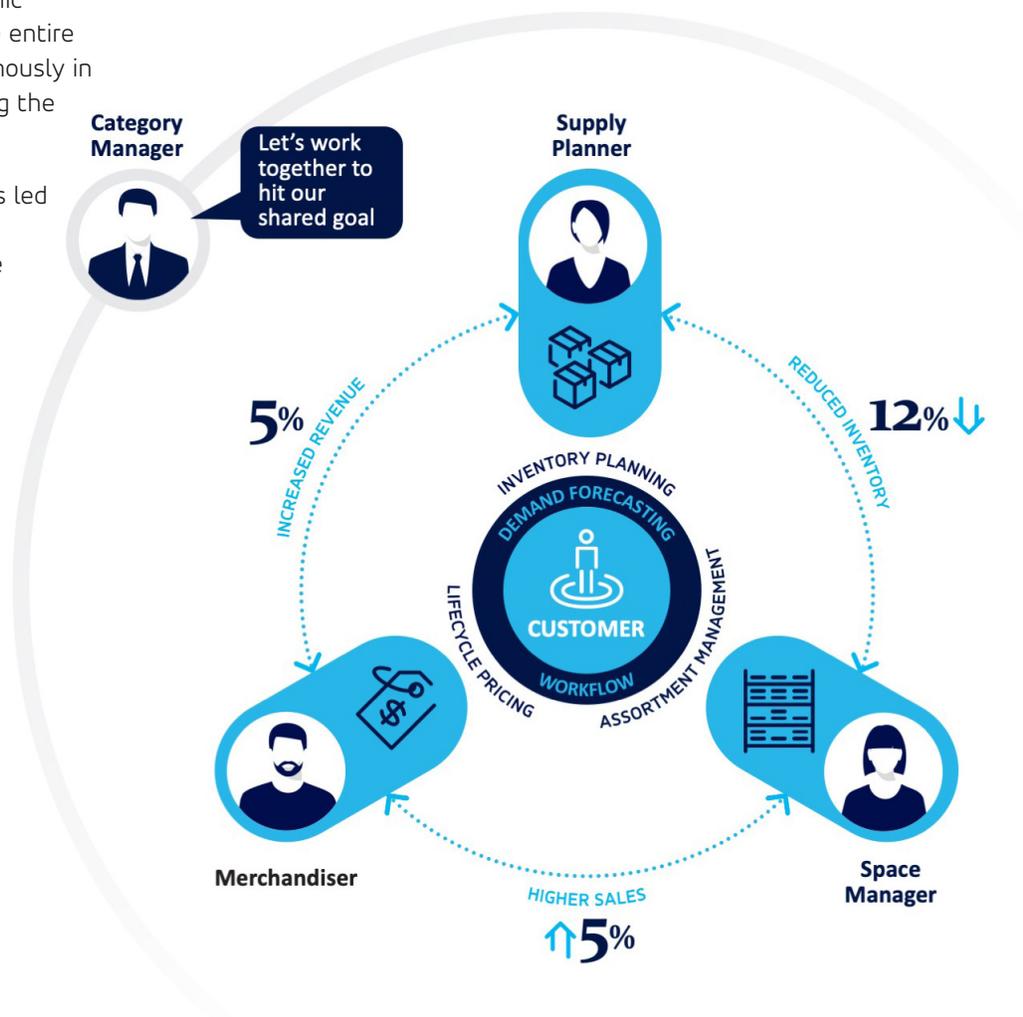
Demand Forecasting: The Basis for Synchronization

Blue Yonder creates a common dynamic demand forecast that adapts as market conditions change — driving a fast, orchestrated response.

In a traditional retail supply chain, multiple functions create their own forecasts to guide their teams — and these forecasts span short, medium and long horizons. The problem with this multi-tiered approach is that it's impossible to reconcile all these disparate projections and synchronize the larger supply chain around a shared perspective on demand. And these static forecasts, which are usually based on historical data, can't keep pace with the constant changes that characterize today's volatile retail environment.

If 2020 and 2021 demonstrated anything, it's that historic performance has little relevance in planning for the future. For that reason, Blue Yonder's forecasting engine assumes nothing: it isn't tied to history, it doesn't apply an average shape of demand, and it doesn't ignore lost sales. It is the industry's only truly dynamic forecasting solution that reflects the extreme speed and uncertainty of today's retail supply chain.

Instead of relying on static, backward-looking data, Blue Yonder's AI-enabled forecasting solution gathers hundreds of real-time data points that have been proven to influence consumer demand.

These include:

- Local weather conditions at a granular level (e.g., temperature and humidity)
- Intelligent event feed, provided by PredictHQ
- Price changes and promotions
- Channel or store attributes
- Product attributes
- Date and time of day
- Product seasonality

Advanced proprietary machine learning interrogates historical data to understand how interrelated demand influencing factors have driven customer behavior shifting the focus on what happened to why something happened. And because Blue Yonder understands that forecasting is the foundation for every supply chain activity, its decision engines gather as much data as possible, both internal and external — then that data is shared among all stakeholder to maximize responsiveness.
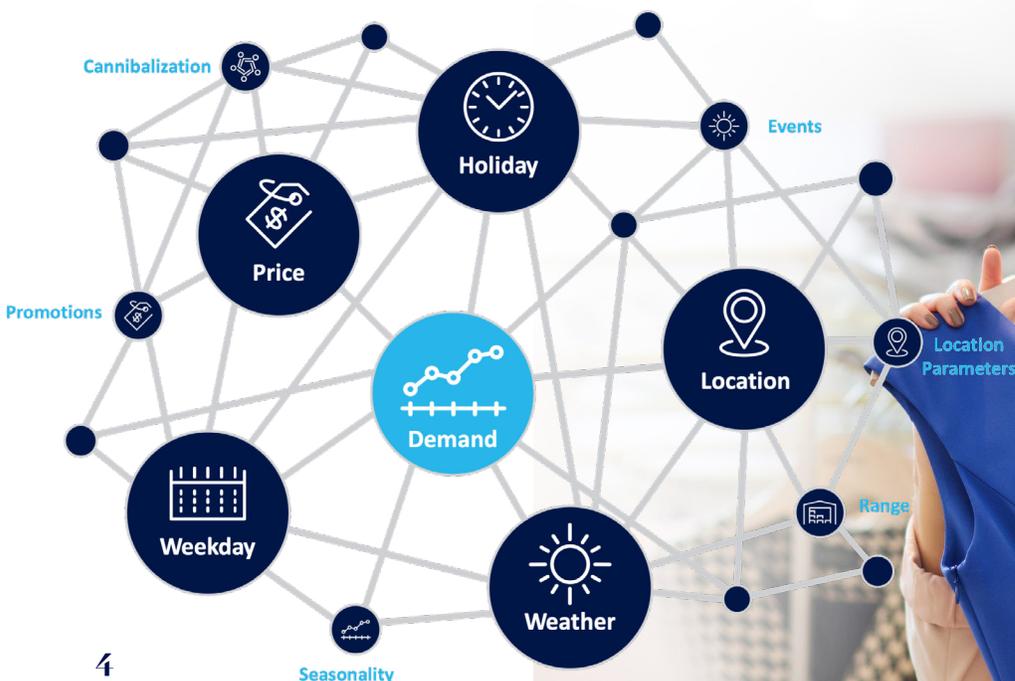
# Probabilistic Forecasting for an Uncertain World

By quantifying the actual risks and opportunities faced every day, Blue Yonder equips retailers to master uncertainty.

Most demand forecasting models begin with baseline assumptions based on historical sales and arrive at a single number, but that doesn't reflect what's happening in reality. Instead, Blue Yonder's probabilistic model maps observed relationships between influencing factors based on, actual conditions and, because demand shifts quickly, it also allows for a unique range of uncertainty in predicting demand. Via ground up probabilistic forecasting, the supply chain is prepared in advance for a variety of statistically likely and less likely outcomes, making it easy to automatically pivot at the earliest sign of deviation.

Blue Yonder's forecasting algorithms are designed to manage real-world uncertainty by considering the full gamut of risks and opportunities retailers face every day. Instead of projecting a single demand number for a Wednesday in May, Blue Yonder calculates the probability of a range of demand levels. If the temperature rises unexpectedly, ice cream sales might skyrocket — and this increase might be more pronounced at stores near a beach or a local outdoor festival, while less pronounced at a big box store or commerce channel.

Human planners are simply unable to account for this combination of event-, weather- and location-driven factors. And they definitely can't do it in real-time.

Blue Yonder's uniquely powerful forecasting engine weighs the trade-offs between excess ice cream inventory on the one hand and lost sales on the other — including costs, service levels and other priorities — and helps retailers make optimal decisions for every product and selling location. Machine-learning capabilities mean that the probabilities and consequences of different outcomes become clearer and clearer over time.
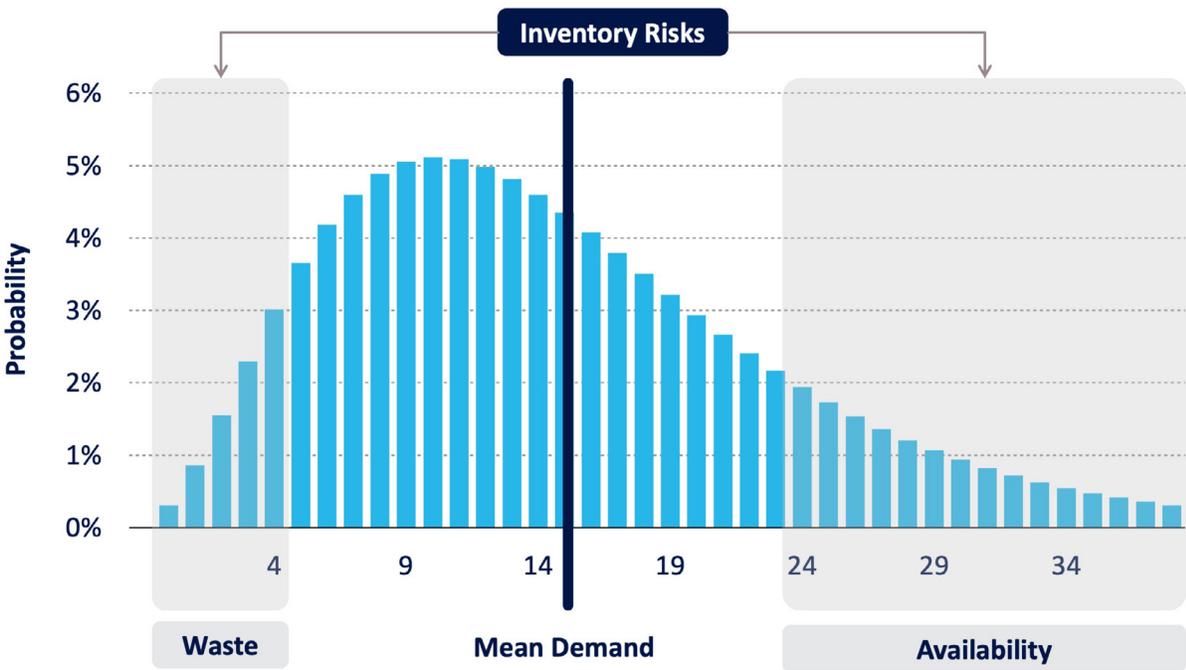
Making Extreme Complexity Simple, and Actionable

Behind the scenes, Blue Yonder's forecasting engine manages the granular complexity so retailers can focus on the strategy.

Blue Yonder's advanced AI, analytics and probabilistic forecasting model make it easy to not only sense new demand shifts, but predict their effects on the end-to-end supply chain via the connected Blue Yonder platform. Forecasting complexity is managed automatically, behind the scenes, and high-quality insights are conveyed to functional managers via a Glassbox user interface. Blue Yonder's robust models and analytics are presented in an explainable, actionable way. For example, all influencing factors related to weather are grouped together.

By leveraging the Blue Yonder platform, all users can share forecasting data and collaborate seamlessly across functions. Working with a shared, single view of demand across the supply chain, users can adjust their own plans and visualize how that will affect other functions. Inherent risks, such as excess inventory or lost sales, are communicated to all stakeholders. Service level impacts can also be easily understood as the retail team works in a synchronized manner to fine-tune their objectives and optimize end-to-end results.

The synchronized Blue Yonder supply chain is not just an automated version of retailers' existing manual forecasting, planning and execution processes, but a re-engineered, dynamic process, supported by artificial intelligence and machine learning, where outcomes continuously improve. The supply chain becomes self-orchestrating and self-learning. And it all begins with the concept of a single, dynamic forecast that's easily communicated and automatically adjusted as conditions change.

Replenishment and Allocation

By quantifying real risks — including waste, stock-outs and lost margin — Blue Yonder masters the art of inventory placement.

Based on the dynamic forecast, Blue Yonder orchestrates replenishment and allocation in a similarly fluid fashion that's customized to each retailer's unique goals at any point in time. Replenishment managers have the opportunity to fine-tune their results, based on desired availability levels, waste minimization, food freshness or the optimization of scarce labor resources.

Because humans think laterally, and their ability to simultaneously consider dozens of inter-related factors is limited, they typically err on the side of caution — which generally means over-ordering to ensure a safety net. But, in today's unpredictable environment, that often leads to excess inventory and waste as demand changes suddenly. (See image below)

Not only can Blue Yonder solutions sense disruptions early, but they can automatically balance replenishment orders based on pre-defined strategic rules. Blue Yonder allows

users to dial "product availability" or "waste minimization" or other cost-based metrics up or down, according to strategic priorities, as market conditions shift — and machine learning capabilities allow this fine-tuning to continuously improve over time in generating predictable results that consistently ensure the right product is available while overall inventory levels are decreased.

Like the demand forecast, replenishment and allocation orders are dynamic and based on the concept that there is inherent uncertainty. At any point in time, based on the current demand forecast, Blue Yonder's decision engine is autonomously creating an optimized order based on balancing the risk of lost sales versus the risk of waste — and considering other factors that are customized by each retailer. This optimized order intelligently minimizes risk exposure and supports strategic goals, instead of representing human intuition or best guesses.

Smart Category Management

Filling shelves is not the goal. Blue Yonder solutions help shape demand and maximize revenues.

Blue Yonder solutions also enable the category management process to become more fluid and dynamic, with smaller, more frequent space changes that reflect actual demand trends and minimize the in-store disruption seen in full resets.

Instead of making a huge investment in completely resetting shelves and stores, retailers can continually adjust their space and floor plans at a localized level, thanks to the granular demand information generated by Blue Yonder. Changing customer preferences make it increasingly difficult to plan on past sales. Category Management using Blue Yonder can update their plans are updated, so store employees are not investing their time in manual analysis and decision making.

As changes are made to planograms, these updates are automatically reflected in the entire order chain. More facings mean more stock is delivered to the store. Fewer facings mean less stock. And, because Blue Yonder solutions have a detailed view of package sizes, available space and other constraints, the plan is also built to maximize every available inch of space, at every store.

By matching local displays and assortments to dynamic shopper demand, Blue Yonder increases the ability of the category management team to actually shape demand and drive purchases, versus reacting to demand shifts after the fact, when it's too late. By creating the right assortments and shelf plans to reflect current local market conditions, Blue Yonder creates a powerful competitive edge.

Demand Forecast

Demand

Time

Pack Size

30.00

20.00

10.00

Lifecycle Pricing

Instead of focusing on markdowns, Blue Yonder leverages pricing as a strategic tool across the product lifecycle.

Product markdowns represent every retailer's nightmare, but clearance is only a small part of the product lifecycle. Maximizing revenues and margins begins at the time of product placement. Blue Yonder recognizes that pricing – like assortment curation – is a demand steering mechanism that allows for continual flow of new product while minimize margin depletion on the markdown.

Lifecycle Pricing is a delicate balance between maximizing financial results and satisfying the consumer's driving needs and motivations. It means understanding and intelligently addressing the price tolerance of thousands, or millions, of consumers shopping across multiple stores and channels — which happens to be a moving target.

Price elasticity is only one component of smarter pricing strategies. Understanding how the customer might respond to a price change is less importance than how the customer might respond to a price change within the

context of season, weather, competition, holidays and events. Price elasticity without demand misses the bigger picture — and reduces value.

This incredible complexity is a natural fit for artificial intelligence. Blue Yonder's price optimization engines dynamically gather enormous volumes of data from across the marketplace, and automatically pull the right pricing levers to shape demand, fill shopping baskets and drive consumers to the checkout.

Blue Yonder's pricing algorithms are unique in their ability to combine internal data with external data — including competitor pricing, news, weather — to create highly localized pricing strategies at scale. Only Blue Yonder combines granular data from the demand forecast with machine-learning based price elasticity to effectively steer demand and maximize margins from product launch through end-of-season.

Optimized Execution

In the distribution network and store, employees' productivity and strategic contributions are maximized

By automating and connecting daily decisions, task execution, and disruption handling, Blue Yonder's AI-enabled solutions make the entire retail supply chain operate faster and more efficiently.

In both the distribution network and store, smaller and more targeted amounts of inventory flow through the network, which translates to lower requirements for storage, transportation, replenishment, handling and labor. Daily activities like ordering, managing inventory, transporting items, and executing price changes are automated. This allows employees in store, logistics and fulfilment operations to transition from more manual, tactical work to making higher-level, more strategic contributions. Automation positions retailers to maximize the impact of the staff they have on hand, which is critical in the face of today's labor shortages.

Daily activities that can't be automated, like food preparation, are guided by best practices and become significantly more efficient. Mobile technologies connect all employees in real-time for maximum speed and agility,

while also attracting digitally native Generation Z employees to the retail workforce. One-touch task management ensures that capacity constraints, such as labor and space, are considered by AI before the action is initiated — and that each action makes strategic and financial sense.

To help manage the complexity of omni-channel selling, Blue Yonder solutions also support inventory reservations, as needed, to meet e-commerce demands. In the event of supply disruptions, product shortages or cross-channel conflicts, AI acts to swiftly resolve these based on pre-defined objectives like service-level or margin optimization.

End-to-end visibility across warehouse, labor and transportation management and intelligent optimization based on a broader set of data enable retail organizations to accommodate increased e-commerce order volumes, resource volatility, and supply chain disruptions, resulting in reduced fulfilment times as well as increased throughput.
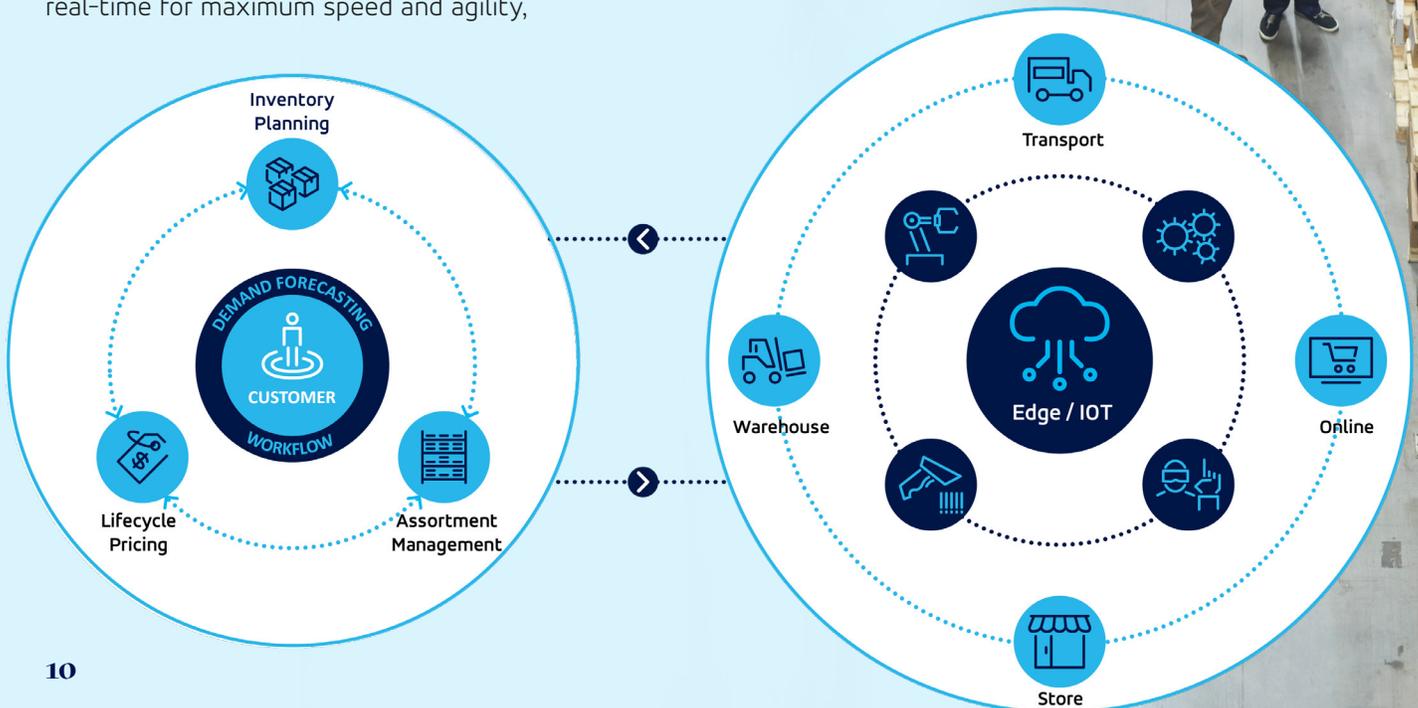
Why Blue Yonder? Because now, more than ever, retail is about the detail.

It's simple, really. Today's fast-moving, volatile, omni-channel retail environment far exceeds the capabilities of human planners. You need a partner with innovation in their DNA. Blue Yonder's industry-leading AI engines are built to gather hundreds of real-time data points, apply the most advanced algorithms and statistical models, and autonomously arrive at optimal decisions that balance outcomes across the supply chain. With Blue Yonder managing the granular details and synchronizing end-to-end actions with pre-determined goals, your employees can focus on more strategic priorities.

Blue Yonder offers four key value drivers that are unmatched in the industry:

Resilience through intelligence.

Today, every software provider claims to offer AI —but Blue Yonder's industry-leading, proprietary AI is proven to deliver real results. Blue Yonder optimization engines ingest hundreds of variables, enact risk-aware decisions, continuously scan for exceptions and reset the end-to-end supply chain for maximum resilience.

Low-touch automation.

AI and pre-determined goals mean that autonomy is more than just acceleration. Blue Yonder drives your supply chain toward results in a synchronized, orchestrated fashion, with minimal effort from employees. Instead of execution, employees can focus on strategic tasks, fine-tuning the AI and managing exceptions only when needed.
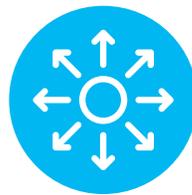
A boundaryless perspective.

Unlike human managers, AI has no functional bias. It aligns the retail supply chain to one set of organizational outcomes and synchronizes all activities on a common platform and user interface. Your organization can go to market faster, aligned by a single goal.
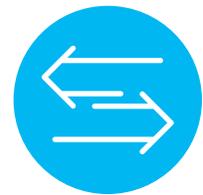
An open, flexible platform.

No one understands retail better than Blue Yonder. That means Blue Yonder retail solutions are configured to integrate seamlessly with upstream and downstream systems, with unmatched scalability and extensibility. Retailers can add their own unique DNA to Blue Yonder's proven platform, which features complete commerce capabilities along with boundaryless, automated planning and execution.

The retail supply chain is never going to be predictable. But Blue Yonder helps your organization transform uncertainty into a marketplace advantage by pivoting faster, smarter and more cohesively than the competition.

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