

Dynamic Omni-Channel Planning

How to Improve Availability in
Omni-Channel Hardlines Retailing



Customers Won't Buy What They Can't Find

Right product, right place, right time. The problem is as old as retail itself, but for hardlines it is becoming a greater challenge.

With over [two thirds of shoppers](#) preferring a blend of in-store and online shopping, getting the right stock in the right place at the right time to get the sale has never been more important.

Why? Take the typical hardlines basket. It is often made up of related items. Many are widely available national brand. If one item is out of stock, there is always a risk that the customer will abandon the entire transaction. [Half of shoppers](#) completing a transaction without the items they wanted attribute it to out of stocks.

Volatile customer demand and strong competition have traditionally made in-store availability difficult to manage. With the significant growth in omni-channel retailing over the past two years, merging an online layer with existing physical channels compounds the problem. Customers don't see channels, they see a single brand, and they expect to complete transactions seamlessly. Inventory must be available via the shopping method the customer chooses.

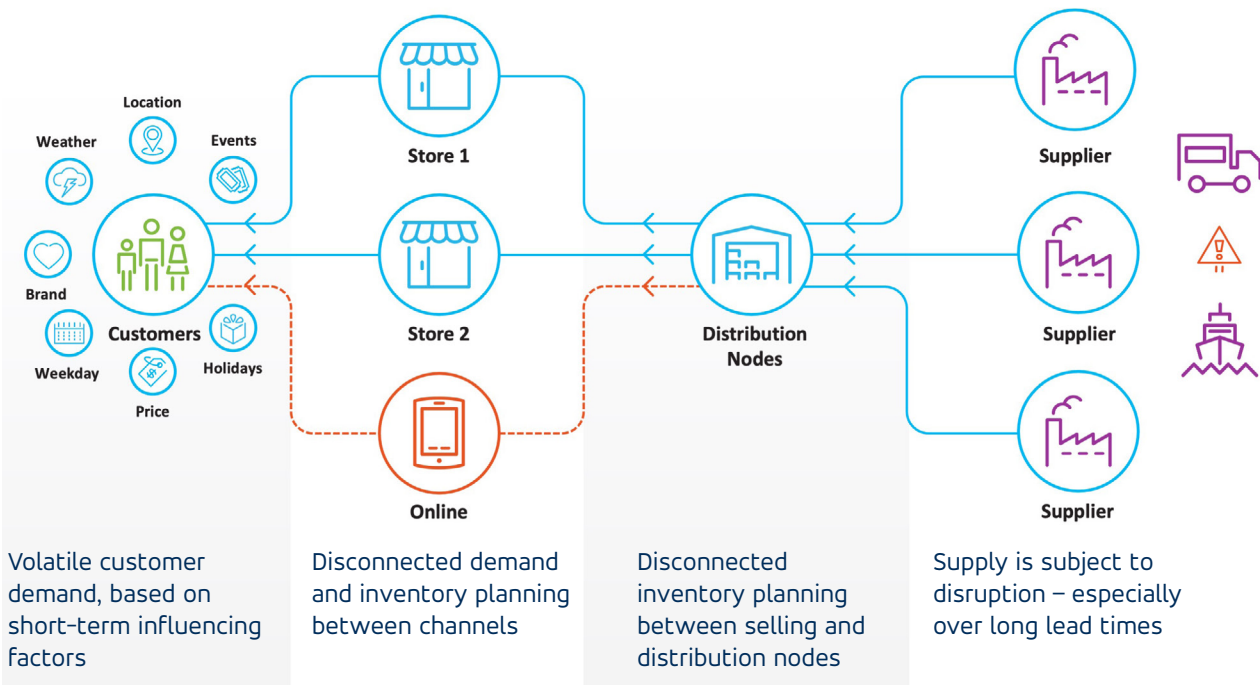
Safety stock is one of the easiest ways to deal with volatility, but it comes with the risk of locking up capital in unproductive inventory that eventually has to be cleared or transferred, incurring additional handling costs. Carrying more inventory in stores or warehouses than needed becomes expensive in an omni-channel world.

Long lead times don't help. By the time customers are ready to purchase, the assumptions underpinning an inventory plan may be upturned. An event as simple as a snow storm could rapidly shift in-store demand to online. An unexpectedly long summer can reduce the time available sell autumnal assortments. Allocation and replenishment needs to be tightly coupled to allow agile shifts when disruption inevitably happens.

Shipments can be delayed. Sometimes the disruptions are large, like the Suez Canal blockage. Other times they can be as commonplace as reduced labour in the warehouse to dispatch inventory or a truck broken down on the highway.

The challenges facing hardline retailers are multi-faceted and require a multi-faceted solution based on common principles, not just a common data layer.

The traditional approach: supply-driven inventory planning and execution. The customer sits at the end of a disconnected supply chain.



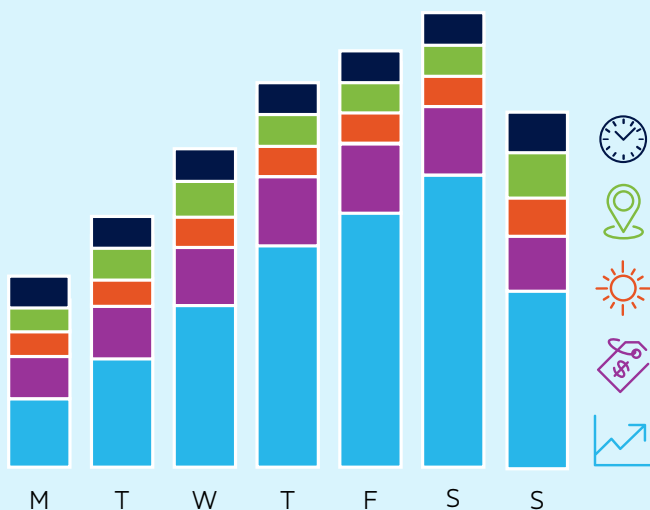
To delight your customer, you need to understand your customer

Demand planning is the foundation of a dynamic and resilient supply chain. Blue Yonder simplifies the hardlines supply chain by synchronizing the inventory plan around granular and localized customer demand, tracked at the source using proprietary machine learning. Trying to work backwards, from an aggregated distribution center (DC) record back to the customer, reinforces a supply driven model, with the customer sitting at the end rather than being the driving factor. Blue Yonder's bottom-up approach to planning constructs a demand chain based on customer need.

Blue Yonder doesn't base its demand forecast on weekly historical sales which need to be disaggregated and adjusted to account for promotions, weather and events. This helps demand planners avoid three major pitfalls:

1. History doesn't repeat itself.

Promotional plans shift depending on the economy and buying patterns. Even seasonal patterns like the weather are unreliable, with [weather repeating](#) itself only 15% of the time, year on year. The day-to-day variations in local shopping patterns are where availability improvements can be made.



The traditional approach to demand planning, based on a disaggregated weekly historical baseline with layered adjustments.

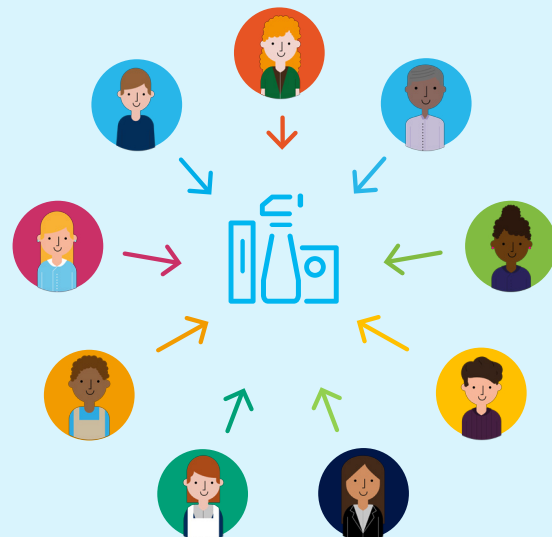
2. Historical availability is rarely perfect.

A sales baseline contains historical out of stock records, preventing true demand being forecast and inviting manual, intuitive adjustments.

3. Relying on history locks you into past behavior.

Previous promotional plans and customer channel preferences are embedded in the sales record. If you want to move with the fast-changing market, you need a more dynamic method of forecasting.

Blue Yonder takes a proactive approach. Rather than looking back, it measures the strength of demand influencing factors as well as the relationships between them for each product, in each store, for each day. Our forecast is based on the projected combination of demand influencing factors, while out of stocks are intelligently identified and corrected in the learning. This approach moves beyond what happened to why it happened. And by understanding the changing micro picture in each selling location, it builds a dynamic foundation for multi-echelon inventory planning, with the forecast outperforming the best demand planners at speed, accuracy, and granularity.



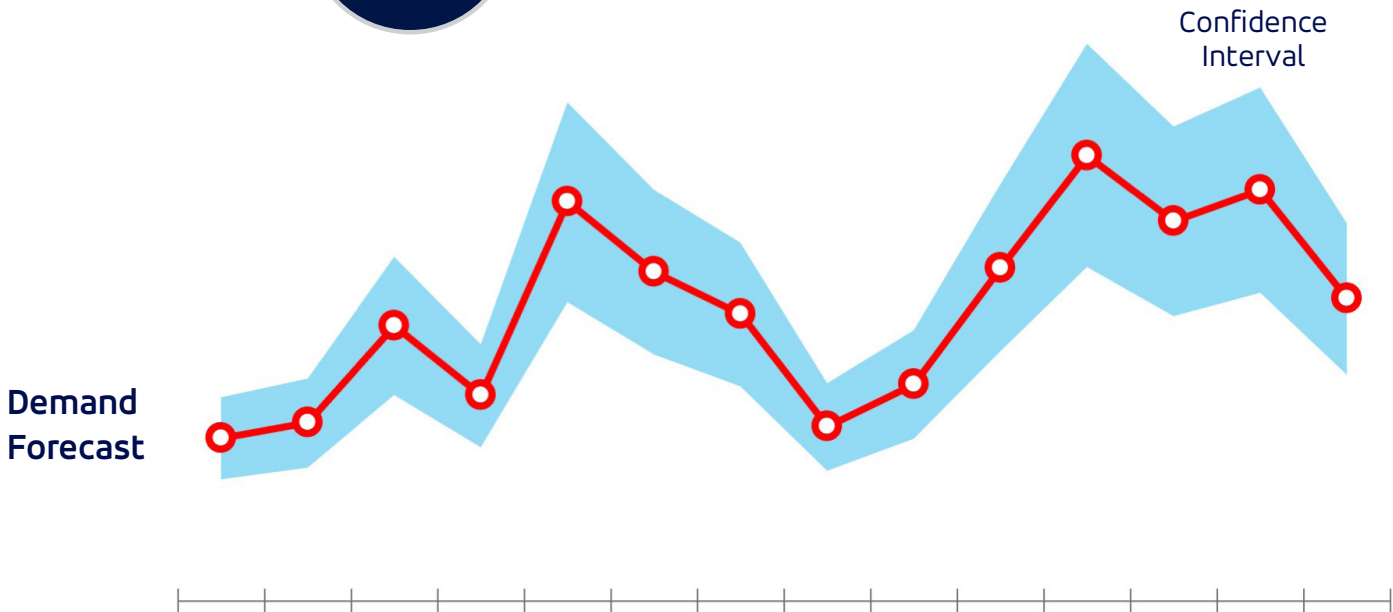
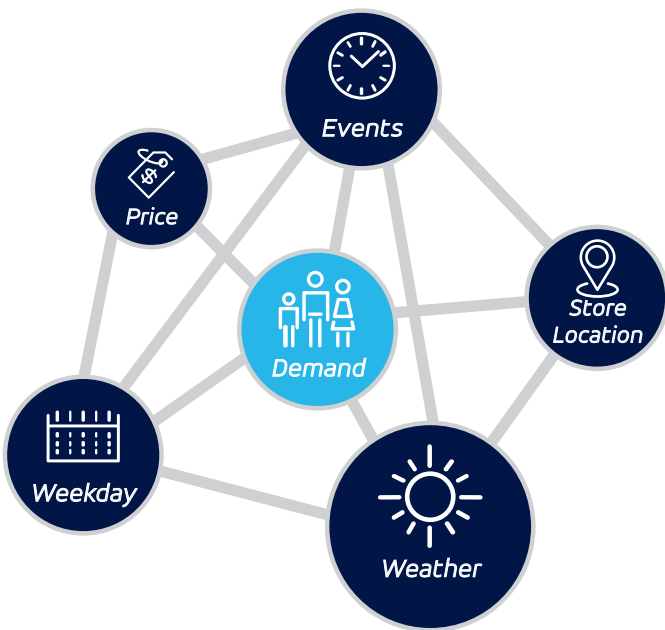
Customers think in a connected way, every influencing factor is considered simultaneously. They don't think in terms of layers.

This approach delivers three major improvements to demand planning:

1. The machine learning model self-learns across both the merchandise hierarchy (departments and item attributes, such as brand and feature) **and location hierarchy** (store formats, location attributes.) This makes history cloning and like item selection redundant as the forecast not only learns from the behavior of a single item in a single store, but across similar items in similar stores, automatically.

2. Having a single algorithm designed specifically for retail unifies demand across all channels and reduces manual reconciliation. Algorithm selection and tuning disappears, replaced by collaboration around the forecast inputs and outputs, moving the demand planner into a more valuable role as a strategic advisor.

3. Forecasting is never certain. A forecast is not a prediction. Predictions seek certainty. A forecast identifies a range of possibilities, highlighting uncertainty and exposing risks such as insufficient and excessive inventory against the demand signal. Blue Yonder's forecast calculates a confidence interval to automatically track demand uncertainty. This helps to turn disruption into opportunity, as demand uncertainty can automatically adjust safety stock levels to improve availability and drive higher sales.



Synchronize inventory management around customer need.

With high levels of complexity in omni-channel retailing, only intelligent automation coupled with meaningful user interaction can make a supply chain more dynamic and improve availability without building excessive inventory. Blue Yonder delivers over twenty years of supply chain excellence built in partnership with some of the biggest names in the business. This experience has proven that you cannot simplify inventory planning and execution without understanding the customer.

Seasonality

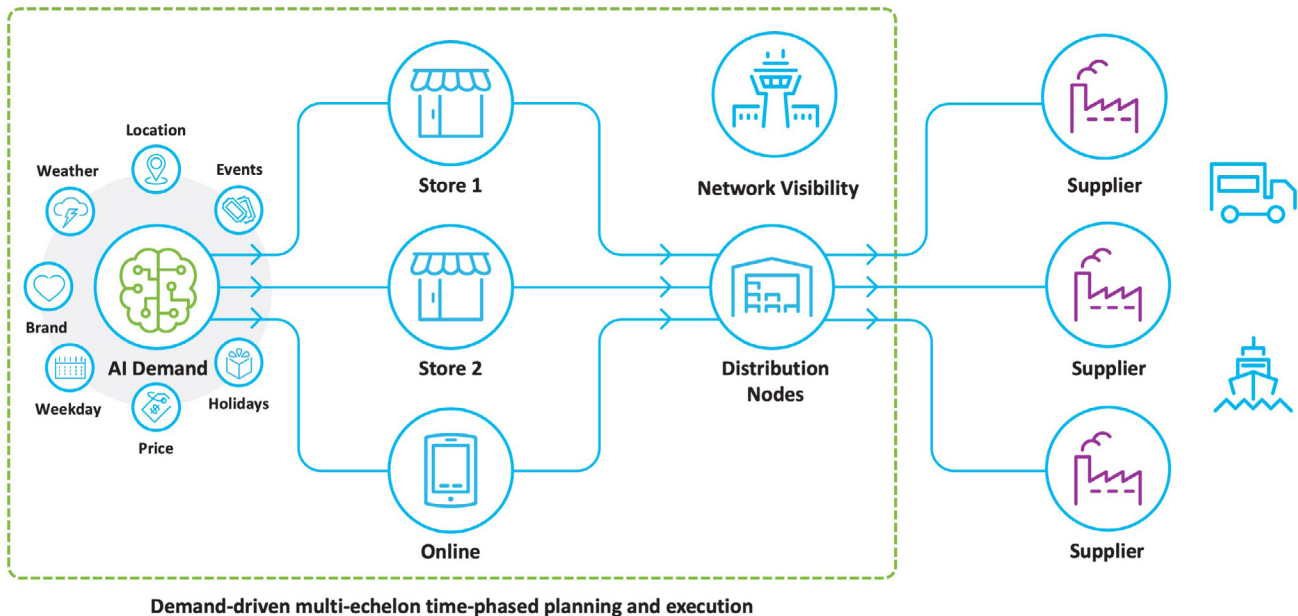
Whether attempting to predict the start and end of do-it-yourself (DIY) season, preparing for a spike in patio furniture when spring temperatures spike, or anticipating the increased demand for dorm room supplies aligned with students returning to colleges

and universities, seasonality is a reality of hardlines retailing. Unlocking the demand forecast from the past is the key to understanding the timing and local nuances of season.

Consider a leaf rake. The timing of the initial allocation and final push of inventory is critical. Too early and you take valuable capacity from the stores and DC. Too late and you risk losing sales – and customers – to a competitor, as well as steeper clearance markdowns.

This is one area where a more dynamic demand forecast can simplify planning and execution. Capturing the way customers react locally to products against a changing climate avoids poor allocations and helps improve replenishment decisions within the season.

The Blue Yonder approach: demand-driven multi-echelon time-phased planning and execution, synchronized around customer need.



Pricing and Promotions

With so much of the assortment based on national brand products that are broadly available, hardline retailers need to be competitive in the market or risk losing customers. This is especially true now as prices are rising and customers are worried about inflation. Having competitive pricing and promotions is a must, but the impact on supply chains can be huge. Get it wrong, and a competitive price change or a strategic promotion can leave stores without sufficient stock.

As seasons end or range changes, clearance pricing becomes critical. Understanding customer demand against price change can help determine the best locations to clear stock, and ensure that shelves are ready to take in new items without excessive remainder stock.

Automatically incorporating pricing and promotions into the forecast helps, but each item in each store will behave in a unique way, dependent on the influence of other correlated demand factors such as the weather, location of the store, and day of the week. Price is not simply a factor that can be added to a forecast baseline.

Events

Some items, such as flat panel televisions, household goods or party supplies, are subject to the pull of events such as major sport events or the shift of students across the country aligned to school calendars.

Blue Yonder, along with long-standing intelligent events partner [PredictHQ](#), have perfected the science of automatically incorporating event data into a forecast. PredictHQ identify the impact and ranking of events in local areas, which Blue Yonder automatically consumes and processes alongside the many inter-connected demand influencing factors driving customer behavior. This saves demand planners from the effort of identifying events and ensuring that they are included in the forecast, helping to improve availability and minimize disruption.

Omni-channel Planning

With customers increasingly expressing a desire to shop where and when they choose, omni-channel cannot no longer be tacked on the supply chain, especially as inventory can be fulfilled from both stores and DCs. At a minimum, customer demand for online needs to be tracked separately from stores. Each channel will have unique and dynamic behavioral patterns that can quickly shift.

By consolidating demand across all channels at the most granular level, it becomes possible to have a single interconnected demand forecast which drives a time-phased multi-echelon supply chain build around customer need. What's more, by linking demand forecasting with Blue Yonder Commerce capabilities, you can start to understand where future demand is most likely coming from, based on where the customer wants the merchandise as opposed to where it has been traditionally fulfilled, leading to reduced operational costs and improved customer satisfaction.



New Products and Stores

With so much seasonal churn in assortments, many retailers desire a more simple, dynamic solution to the challenge of where to place inventory. The typical response to automation is to identify and assign like items based on other items in the category and similar attributes and copy sales history. But every item's performance, in every store, is unique. A new item or store will never behave exactly like a similar like item, causing demand planners to excessively monitor and amend forecasts based on their intuition.

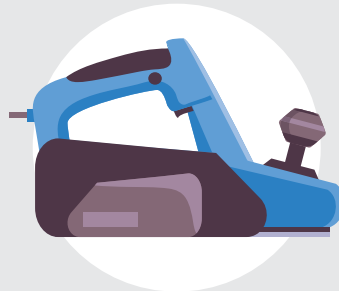
Machine learning is generally considered self-learning, but Blue Yonder takes a more thoughtful approach. Rather than finding a single best-fit item, we learn behavior across all stores and formats, all items within a product group, and all item attributes. Rather than learning from a single item, the forecast automatically learns from a family of items and then adjusts as actual performance is captured.

The benefits are in spreading the risk of uncertain demand across many items, while demand planners will claw back hours spent in cloning items and stores, then manually adjusting the results.



The assortment is never static.

Items are replaced with newer features, the assortment contracts and expands as customer tastes evolve. New lines of business emerge. Each of these scenarios has specific challenges and needs.



Assortment Change

- Halo and cannibalization as new variants added and removed
- Change in shelf position can adjust existing demand patterns

Replacement Items

- Often with new features, pack changes or price ranges
- Do not always behave like the item they replace

New Lines of Business

- As the assortment grows, new items can complement existing lines but cannibalize sales
- Demand transference exists but patterns may change as popularity grows



Turning Uncertainty into Strategy

Demand is the foundation of a simplified process that synchronizes inventory movement through stores and DCs then on to suppliers as a holistic constraint-aware plan.

Dynamic Safety Stock

Capturing uncertain customer demand has a practical benefit to time-stressed planners. By understanding the potential volatility in the demand signal, and automatically adjusting safety stock levels at each inventory node, planners are freed from some of the manual effort in improving availability. The parameters that are established in the initial deployment but rarely re-visited can automatically adjust against the demand signal at the most granular level.

Customer-driven Inventory Push

Traditional approaches to allocation typically use static profiles to help determine where inventory should be placed, based on historical selling patterns. Volatile customer demand offers a smarter approach, using the intelligent demand signal to help determine where to place inventory pre-season, as a result of range reviews or end of season clearances. Incorporating a dynamic demand signal helps ensure that inventory placement decisions are made using the most recent understanding of customer preference, offering far greater accuracy and precision than static profiles.

Optimized Orders

Connected, time-phased multi-echelon ordering beats the traditional approach of looking at stores and DCs in isolation. Orders can be optimized against known networks constraints, such as truck, pallet and pack rounding, supplier minimums & maximums, and capacity & space constraints. Planners are alerted to issues to better manage inventory

flow through the network, allowing for putaway, cross dock or direct sourcing, as well as the purchase and distribution of opportunity buys.

Slow Sellers

Today's hot seasonal product can quickly become tomorrow's slow seller, joining the large number of items in the long tail of the assortment. But managing slow sellers is not just a demand problem. Inventory management must also be factored in to avoid the bunching effect.



If an item sells on average less than a single unit per week in a store, demand will always be expressed as a decimal over the week. It's not possible to sell 0.1% of an item; in reality, that whole item might be purchased at any time over the week. With a safety stock level of 2 units, selling one unit on any day of the week will result in an order being placed for that store, even when no more stock is required.

If a large number of stores request additional inventory from the DC, the DC may need to order additional inventory from suppliers. Since it's unlikely all the stores will sell the additional item triggered by the order, some stores will be overstocked, other stores will be understocked, and the DC will struggle to manage capacity. The entire network becomes clogged with expensive dead stock and trying to manage forward order projections with suppliers becomes compromised as demand becomes overstated.

The answer to slow sellers is intelligent replenishment management. By understanding the probability of a sale and accounting for inventory netting, lead time and order schedules, more accurate inventory can be planned across the network. The transformation more accurately reflects actual likely sales, eliminating excess inventory and sharing more realistic projections with suppliers.

Adding dynamic safety stock, based on the uncertainty of demand, further refines the logic. Because Blue Yonder's forecast understands risk and variability, it enables a new way to manage safety stock, which can be more accurately based on service levels and optimizing profits.

Seamless Push and Pull

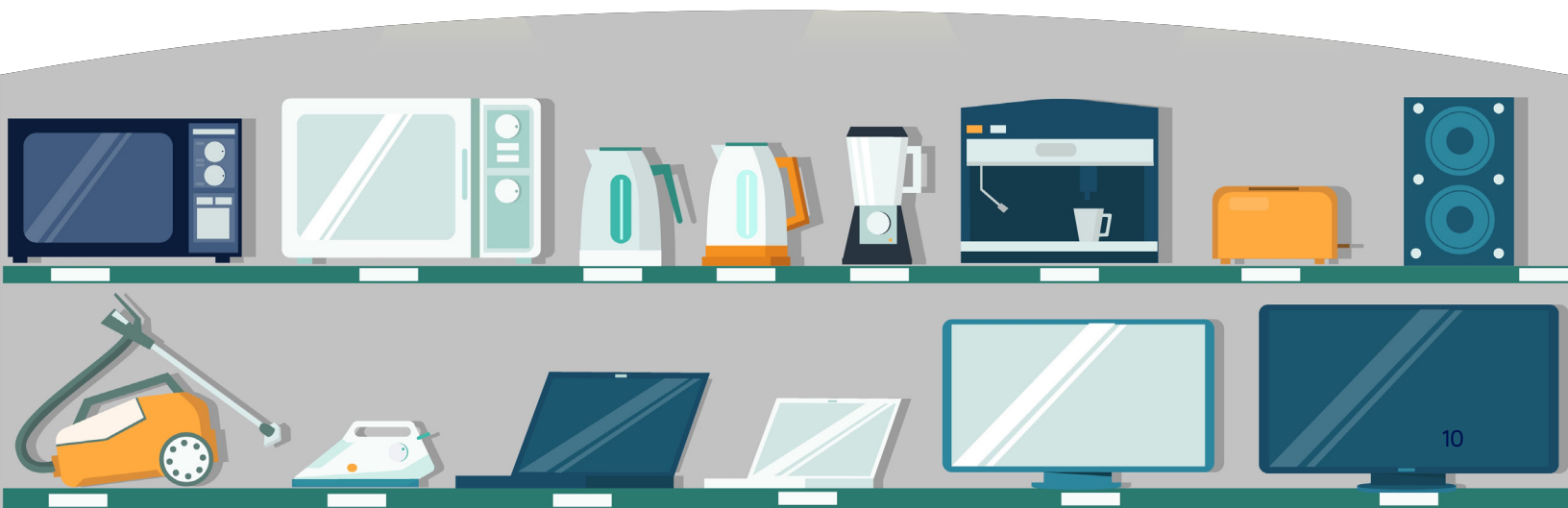
Inventory planning is a holistic process across the season, and many items are both allocated and replenished over their lifecycle. Splitting allocation and replenishment across disconnected point solutions prevents market agility in the face of disruption. Having a common and integrated way to manage allocation and replenishment delivers efficiency and consistency, with intelligent algorithms generating inventory plans and empowering planners to make informed decisions about exceptions such as out-of-stocks, overstocks and late deliveries, while safety stock manages itself.

Consolidated data alone cannot deliver these efficiencies. An intuitive, exception-driven, and modern user experience is required. One that sees inventory pushes and pulls as a single management objective which allows inventory planners to improve availability with intelligent alerts in areas such as capacity management.

Shifting to a modern user experience helps build domain expertise in your planners as well as mitigate staff shortages as planners don't need to master multiple systems.

Visibility Counters Disruption

With many items in the assortment sourced on long lead times, the risk of disruption always exists, threatening to spoil the best made inventory plans. The best way to manage long lead inventory is visibility from shipment to store. Where shipments are delayed, planners are alerted to the future impact of the disruption so they can proactively manage the issue, closing the loop from shopper to supplier.

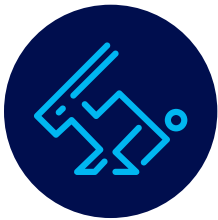


Business Impacts



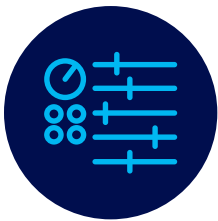
Unified cross channel demand

A single, highly automated demand forecasting engine built for all retail assortments that simplifies seasonality, new product introductions, promotional planning, and event management. Demand planners shift into a strategic role, serving the entire organization.



Faster speed to market

The combination of automated demand, exception-managed inventory planning, and long-range visibility and orchestration to navigate disruption enables goods to be brought to market faster in locations where they are most likely to sell.



Better control of outcomes

Users are guided to control outcomes built around a customer-driven demand signal and feasible order optimization rules. Automation enables greater control as planners intervene only where they need to, when they need to.



Higher availability with less held stock

By marrying demand and inventory planning and considering demand uncertainty, supplier agreements, network constraints and corporate inventory policies, inventory placements are guided by the combined intelligence of people and machines, improving availability while reducing overall inventory.



Increased resilience and visibility

By better understanding what drives customer demand, capturing and directly consuming uncertainty, and providing users with the capabilities to proactively manage disruption, the supply chain becomes more resilient without losing efficiency.



Our Customers

Join these industry leaders in running a more smarter, more dynamic omni-channel approach to inventory management, built on retail's most extensive supply chain platform.



HEMA

Case Study



meijer

Case Study



For more information on how Blue Yonder can help solve some of grocery's biggest challenges, please visit <https://blueyonder.com/solutions/retail-hardlines-industry>





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