Luminate Planning

Luminate Retail Replenishment

BlueYonder

Replacing guesswork and assumptions with confidence and accuracy, enabled by proprietary AI

What will your shoppers do next? Where do you need to stock products to maximize your revenues and minimize markdowns, waste and lost sales?

For grocery retailers, these are the questions that matter. And answering them has become incredibly complex, as shoppers shift among channels, vary their cart volumes, and act in increasingly unpredictable ways.

Even before the advent of COVID-19, market patterns were shifting but the pandemic has only accelerated and exacerbated the trends that were already shaping up. Consider that grocery has seen a 33% increase in online sales globally in 2020[1], following years of decline. The online market is now worth over $22 billion US.

Human planners simply can't analyze the incredible volume of shopper data that's available today — let alone relevant third-party data such as weather and news and use it to predict what shoppers will do next. So what's the solution?

Enter Luminate Retail Replenishment (LRR).

Fueled by proprietary artificial intelligence (AI), this innovative solution from Blue Yonder not only ingests huge volumes of data to more accurately predict shopper needs but it also strategically and autonomously assesses the costs and impacts of fulfilling that demand.

LRR looks at the supply chain as a complex, connected entity, marrying an accurate forecast with an intrinsic understanding of inventory risks, along with a granular view of space, stock and capacity constraints across the network. It treats demand and fulfilment as a unified workflow, rather than sequential but siloed processes. It understands the real-time forces driving the consumer and feeds that information up the supply chain to profitably control inventory movements.

One of its greatest benefits is that Luminate Retail Replenishment produces replenishment decisions that are ready for low-touch automation, without human intervention, as they are already aligned with pre-determined category strategies.

How Did We Get Here?

Five trends have created a seemingly impossible situation for retailers

The enormous degree of market volatility that characterized 2020 wasn't just the result of COVID-19 — and it didn't happen overnight. For years, five forces have been shaping the grocery industry, creating an environment in which retailers are unable to react enough quickly to shifting demand patterns.

These trends are impacting the worldwide retail industry in significant ways. In the US alone, 90% of retailers are planning major investment in their supply chains to improve their resilience and speed[2] .

Wildly Unpredictable Demand

Shopper demand was increasingly erratic, even before the COVID-19 pandemic. The only clear thing is that uncertainty will continue. Retailers need to build more accurate predictive capabilities, along with increased resilience.

Crushing Speed of Market Changes

Lifestyle trends always evolve, but 2020 brought changes at breakneck speed. Homeworking, stay-cations and a shift to at-home meal preparation changed what, when, and how people shop. Retailers need to adopt new models as these trends continue to impact demand patterns and shopper behaviors.

Drowning in Big Data

Big data has been a critical input into understanding volatile demand. But the sheer volume of internal, industry and third-party data available is well beyond the cognitive capacity of human planners. AI and advanced analytics are required to ingest this data and transform it into profitable actions.
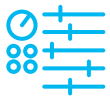
Siloed Thinking

Retail supply chains typically include a large number of functional experts, such as promotions managers or weather analysts. They tend to focus narrowly on the impacts of their own areas of specialization on sales or demand, without considering the bigger picture. Manual, siloed decisions must be replaced with AI-enabled planning engines that consider complex trade-offs and optimize all impacts.

Reactive Fulfilment

Grocery retailers have traditionally reacted to demand swings, rather than anticipating them and building risk-aware plans. Advanced technology solutions blur the line between planning and execution as they increase both planning accuracy and real-time responsiveness as conditions evolve.

Where Do We Go Next?

Advanced technology enables autonomous, self-learning replenishment

The good news is that today retailers can leverage the power of AI and data analytics to understand the complexities of demand, including product seasonality and geographical differences, and arrive at a much more accurate forecast. But, because no forecast will be 100% accurate, advanced technology allows for a range of uncertainty in predicting demand. The supply chain is prepared in advance for a variety of statistically likely and less likely outcomes, making it easy to pivot at the earliest sign of deviation.
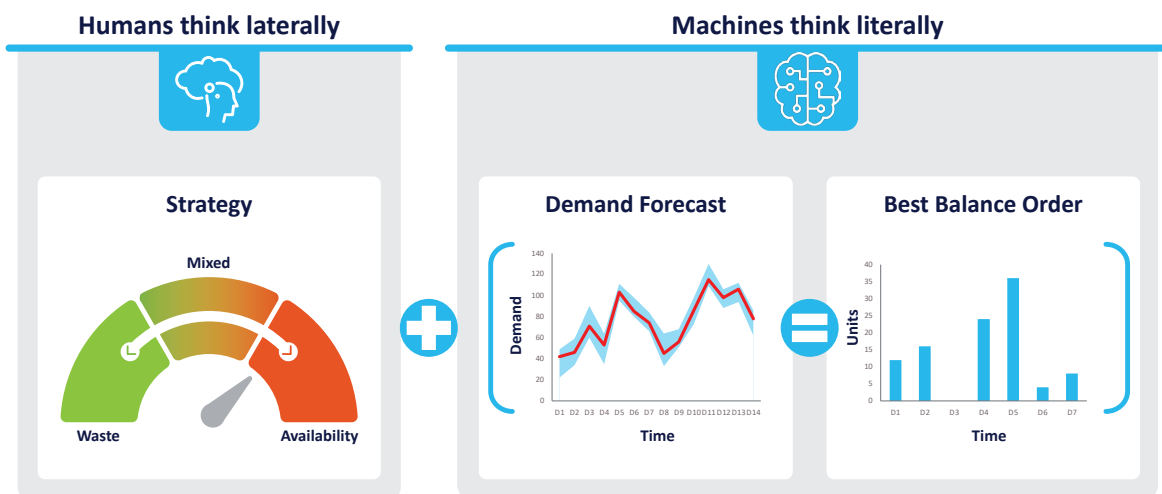
Simply put, advanced technologies make complex demand-and-supply matching problems practical and solvable. Blue Yonder's AI-enabled engines make it fast and straightforward to autonomously forecast demand, and plan replenishment, across hundreds of stores and thousands of products.

Human planners play a more intentional role in the supply chain of the future, strategically directing and managing exceptions rather than reviewing and approving orders, supported by a portal-based user interface that flags issues for resolution.

Blue Yonder builds meaningful human + machine interaction directly into the supply chain, captitalizing on both the objective, numeric decision-making processes of machines and the abilities of humans to extrapolate strategies and determine desired outcomes.

Luminate Retail Replenishment enables humans to define a strategy — "I want to reduce waste in prepared foods" or "I want to maximize the ability of snacks and drinks leading up to the Super Bowl" — and then unleashes best-in-class optimization engines to execute against that strategy, autonomously, with speed and precision.

Because machines are capable of considering hundreds of trade-offs, including lost sales and waste, they generate the most profitable plan for achieving that goal then iteratively re-plan as conditions change. The end result is not just an automated version of the existing manual replenishment process, but a re-engineered process where the outcomes continuously improve. The supply chain becomes self-orchestrating and self-learning.

Humans think laterally — Strategy: Mixed, Waste, Availability

Machines think literally — Demand Forecast (Demand vs. Time), Best Balance Order (Units vs. Time)

The Intelligent, Connected Supply Chain

Self-orchestrating, automated supply chain execution

Linking stores and DCs for seamless, end-to-end planning and execution

Ultimately, every retail supply chain exists to satisfy customer demand profitably (1). But, while customers are the ultimate purpose of the supply chain, they are also the dominant source of uncertainty. Luminate Retail Replenishment quantifies this uncertainty, making it a strategic asset and using it to drive all replenishment decisions along the supply chain. Based on demand, LRR calculates best balanced store orders (2), considering many decision factors such as assortment localization and product cannibalization. Every order is a strategic balance between multiple good reasons to order more stock, balanced against multiple good reasons to order less.

Future demand on the distribution center (DC) side is then calculated by LRR and translated into supplier orders (3), based on all store-order projections, each with their own individual levels of uncertainty. This connects the original source of uncertainty at the store level with the demand view at the DC level. Instead of simplifying the inherent complexity of meeting demand, LRR creates an unbroken chain of mathematical probabilities and always seeks to minimize risk exposure. As the uncertainty in the demand signal increases, the DC automatically adjusts inventory without human intervention.

Of course, sometimes there is not enough inventory in the DCs to fulfill all store demand. AI engines in LRR strategically translate any DC constraints (4) into an impact for each and every single store, with the goal of maximizing profits and service (5). One store might do very well with a smaller quantity, while another store might take a significant availability hit that damages its shopper relationships. While humans struggle to resolve such conflicts, LRR delivers optimal decisions that profitably re-balance demand and supply in mere seconds.

A future-looking demand stream can be confidently communicated to suppliers and then updated as conditions continue to evolve (6).

The self-orchestrating supply chain created by LRR is enabled by an unbroken chain of risk awareness, considering quantified uncertainties in all nodes. Every decision is made with a complete understanding of its impact along the supply chain.

Why Blue Yonder?

Luminate Retail Replenishment is purpose-built to turn uncertainty into a competitive advantage

In the face of increasing demand volatility, grocery retailers have no choice but to maximize the speed, agility and resilience of their supply chains.

Luminate Retail Replenishment transforms demand uncertainty into a competitive edge by connecting the end-to-end supply chain, autonomously considering multiple parameters, analyzing risk exposure and delivering outcomes that balance demand with supply profitably. Its powerful, industry-leading algorithms and statistical models drive highly automated replenishment processes designed to deliver speed and accuracy.

Replacing the outdated concept of safety stock with dynamic, automated replenishment based on a risk-aware demand forecast — dramatically improves product availability and reduces overall inventory levels. Lower inventory levels lead to fewer touch points across the supply chain, while intelligent efficiencies reduce lead times.

Re-imagining the automation approach to place people in a strategic role at the start of the process reduces manual interventions later, because the supply chain automatically aligns itself with pre-determined strategies. The result? Self-orchestration and significantly higher agility as demand inevitably shifts.

Value Drivers

Acceleration

- Demand is continuously measured and updated at the most granular level – SKU/store/day – using best-in-class AI that understands complex influencing factors and how they change shopper behavior.
- As demand uncertainty is automatically fed up the supply chain, inventory movements happen strategically and autonomously, without human intervention.

Self-orchestration

- Real-time constraints at each node are considered in any replenishment decisions — whether inventory levels in the DC, shelf space in the store or supply network capacity.
- As these constraints shift, the replenishment plan is automatically updated.
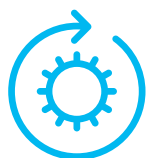
Low-Touch Automation

- The role of human planners changes from manual executors to strategic directors who define the initial objectives, then monitor the results and manage exceptions.
- Ultimately this drives productivity, as humans are focused on strategic outcomes rather than manual planning and re-planning.

[1]https://internetretailing.net/industry/industry/online-grocery-sales-grow-33-in-2020-as-shopping-habits-shift-permanently-consumers-tell-mintel-21316
[2]https://www.bain.com/insights/its-time-to-build-resilience-into-retail-and-consumer-goods-supply-chains/

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