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Why You Should be Using Demand Sensing to React Faster to Market Changes

Put machine learning to work on your data to foresee—and act on—demand changes before your competitors know what hit them

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Introduction

We've created a monster. All the sophisticated tools to influence demand with pricing, new product introductions and promotions have pushed demand volatility and consumer expectations to unprecedented levels. Internet-fed trends are changing at hyper-speed. To thrive in this complex, fast-paced world, you need to be ready for whatever tomorrow brings. Demand sensing offers a way to reduce demand variability by extracting signal out of the noisy demand and seeing and reacting to downstream demand faster than ever before.

Demand sensing companies have "an ability to see trends sooner and, combined with an agile supply chain response, the ability to react sooner to changing demand."

Gartner[3]

Constrained by a [Sub-Optimal] Monthly Forecast?

Feel like you're always behind the eight-ball? If it seems like you're constantly chasing the elusive accurate forecast, adjusting on the fly but never fast enough, and wasting precious expense expediting items to avoid service failures, you're not alone.

Yesterday's forecast and inventory models are no match for today's long tail demand

Items with intermittent, unpredictable or "long tail" demand are proliferating, making demand forecasting and inventory management a headache for businesses. Inventory mixes are wrong. The wrong products are being over-served, locking up precious working capital, while others are being under-served, and causing erosion of margin and market share.

Traditional approaches can't deliver a truly responsive and reliable forecast

Today's fast-movers become slow-movers much quicker than in the past. All this movement across SKU-locations increases heterogeneous demand behavior

"As the long tail (small orders shipped with low-frequency) of the supply chain grows, demand latency increases and there is a greater need for demand sensing technologies."[1]

—Lora Cecere, founder of SupplyChain Insights

and makes the use of traditional forecast techniques extremely difficult. Many companies follow the traditional approach of investing most of their resources and talent in using historical sales data to establish a reliable baseline forecast. The problem is, they can't enable a truly responsive, data-backed forecast without accounting for external demand variables that impact or indicate additional demand variation.

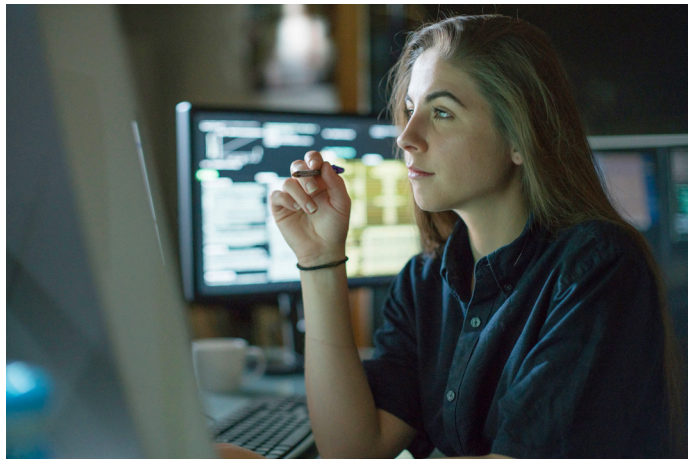
Even worse, many more companies don't have the expertise or tools to achieve even a reliable baseline forecast. Instead, they apply a few simple algorithms like a peanut butter spread and then use a collaboration process to manually adjust the low-quality baseline and consider external demand variables. The consensus? The forecast is biased and inaccurate, but no one takes responsibility.

Data, data everywhere, but not a byte for insight

You may be collecting all kinds of data, but are you putting it to good use to better understand demand? Often companies rely on legacy ERP data for forecasting. This past sales data is abundant and fundamental for the creation of a baseline but it's always backward-looking. You're missing online and external data that can provide near instant view of demand and what influences it.

41% of companies using big data analytics report faster and more effective reaction time to supply chain issues.[4]

Demand sensing helps solve these challenges by enabling a reliable baseline forecast fortified and moderated by external demand-correlated data so you can make better, faster decisions on a weekly or daily basis that contribute to profitability.



Demand Sensing Enables Quicker Reaction to Demand Changes

The good news is that you can use demand sensing to improve forecast accuracy and inventory placement to ultimately improve service, minimize inventory and free up working capital.

We'll focus on two aspects of demand sensing in this ebook:

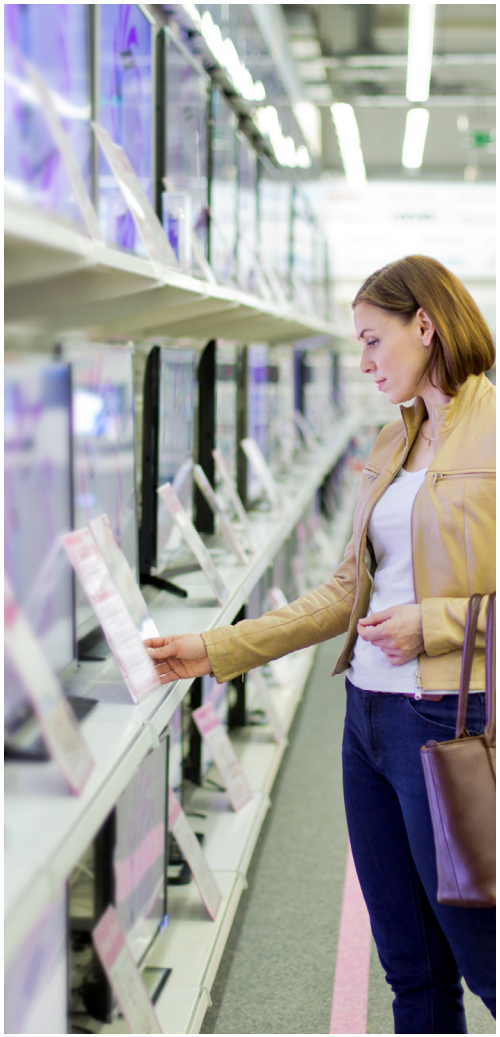
/ **1 Short-term forecasting** leverages a high level of data granularity to analyze daily demand information as close as possible to the end customer and immediately detect changes in demand behavior

/ **2 Extending supply chain visibility** by looking for patterns in point-of-sale (PoS), promotion, social media, NPI, weather, IoT, internet search and economic data to make near-term improvements to your forecast and inventory placement.

Both methods reduce demand uncertainty and enable critical adjustments to your forecast without waiting for your next forecast cycle.

"Companies that have been successful at demand sensing, using forecasting solutions that produce a daily statistical forecast, have proved most successful at improving forecast accuracy, improving service and reducing inventory levels."

-Gartner[3]



How Can You Use Demand Sensing?

As businesses use more “levers” to influence demand, demand variability grows. By modeling those levers, you can reduce variability and guarantee service to customers.

Standard approaches force you to work for a longer time with more uncertainty. Demand sensing’s “short-term forecasting” approach ensures your forecast picks up on short-term trends immediately. It provides actionable insights within the traditional planning interval so you can tune in to demand and react faster to demand changes. Instead of working with the same forecast for a month, you’re empowered to challenge that forecast with the latest sales data and make improvements that boost profits. Demand is a continually changing picture. Get a front row view.

Short-term forecast tuning adds up to long-term savings. Like high-speed trading, demand sensing gives you the ability to rapidly analyze demand data and decide to act—or not.

Here are just a few ways demand sensing companies are turning insights into action:

/ **Reduce demand latency when there's a distributor/ retailer between you and your customer.** You're likely collecting PoS data but aren't using it to rapidly gain market insights and improve service. Demand sensing allows you to extract relevant information directly from PoS data to improve your sales forecast without having to wait for your distributor. "Win time" with earlier demand insights so you can better input supply signals. You can use demand sensing to give better short-term input to production/supply and correct the production plan accordingly by expediting or de-expediting orders, for example.

/ **Make better use of existing inventory in the short-term.** For example, you may have inventory available, but in the wrong place. Demand sensing helps you dynamically optimize inventory and balance your network by considering not only available inventory in regional warehouses, but also factor in expected/"refreshed" customer demand.

/ **Close the gap between the inbound and outbound sides of your business.**The inbound team wants to fill the warehouse with as many goods as it can hold; the outbound folks divide goods into stores to try to get rid of it. It's easy to see how this communication gap can cause forecast and inventory imbalances. Demand sensing helps keep these two groups in sync by showing a single global picture of demand.

/ Generate more precise seasonal demand forecasts. Gaining rapid insights into demand so you can anticipate or react quickly is important for fast movers and seasonal products alike. Expanding visibility of the distribution network reduces demand latency and drives better supply through the network. You'll be the first to know when everyone else runs out of stock. When an item doesn't sell as expected, you can act quickly to adjust production and inventory to avoid obsolescence.

/ Right-size inventory for new product introductions. Product life cycles continue to get shorter; new products are continuously coming in and superseding existing products. Demand sensing helps ensure you have the right amount of the previous products and confidence in inventory you'll need to meet demand for new products.

/ Better understand promotion performance. Use sell-in data such as promotion attributes and product and market data to understand the promotional uplift and better forecast demand for future promotions.

Demand Sensing Reduces Guesswork Around New Product Introductions

Fast-moving industries like fashion, cosmetics and consumer technology are continually introducing new products with short and hard-to-predict lifecycles. Success requires a balance between introducing new products to attract and retain consumers while still managing inventory costs. Most companies err on the side of introducing a wide range of products and holding excessive safety stocks to avoid disappointing customers.

Demand sensing offers a better approach: Use machine learning to weigh attributes (such as color, style and size) of sales of similar items to generate an enhanced baseline forecast by location. During the launch period the solution learns from early demand signals and actual sales data to sharpen the forecast. The result: successful new product launches without excess inventory and markdowns.

Different Stages of Demand Sensing

Typically forecasts look out a month to 90 days, during which planners are unable to make improvements. By sensing short-term sales history and related demand causals, demand sensing gives rapid, near real-time insights within the month to make forecast updates on a shorter-term horizon. You don't need to be confined to the typical definition of demand sensing. There are many ways to sense demand and each new insight can speed reaction time and boost profits.

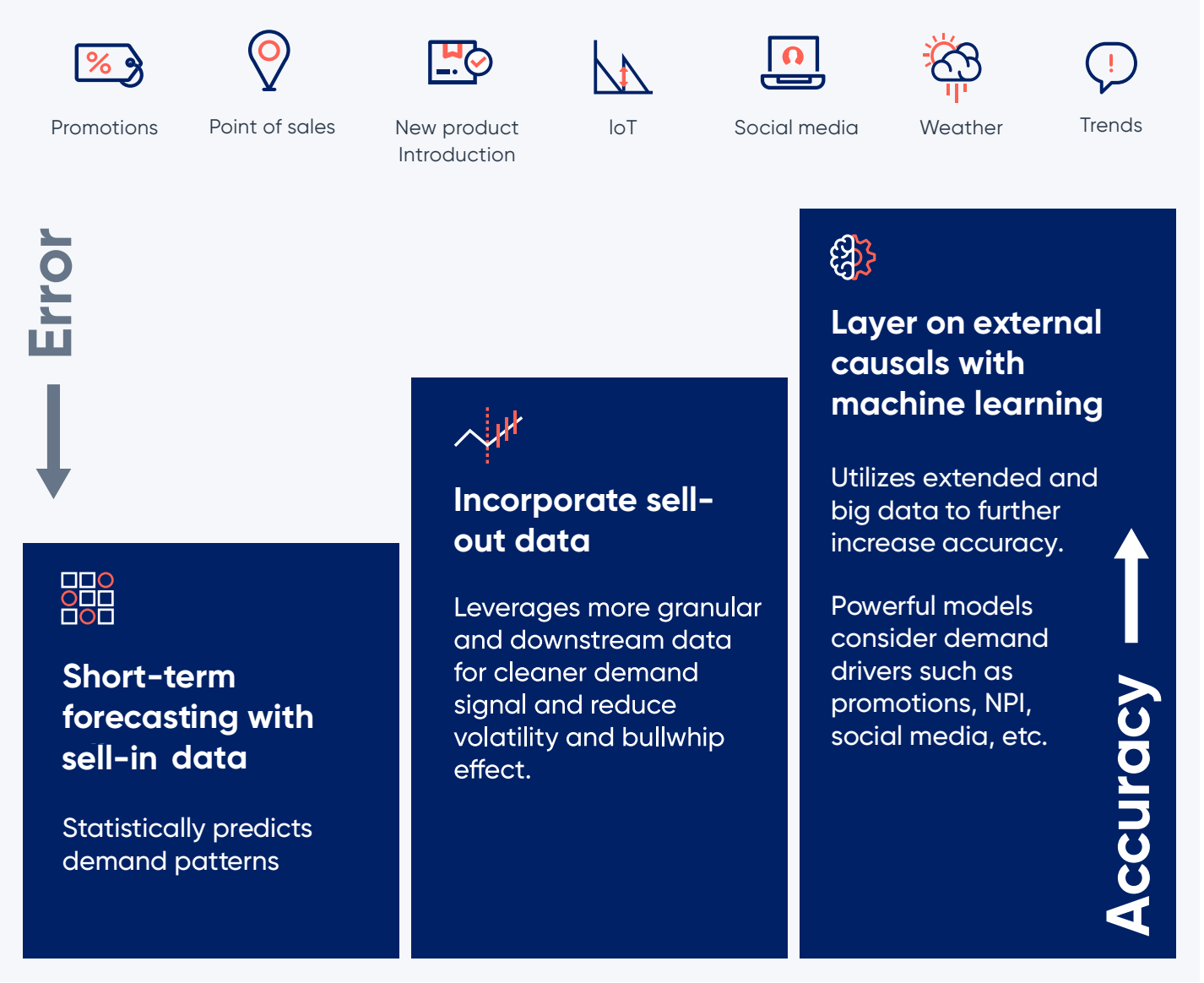
/ **1. Take the first step: Short-term forecasting with sell-in data.** Often the easiest way for companies to start sensing demand is to use the most granular historical data available, typically by analyzing daily sell-in/ship-to demand data using shorter time horizons and adjusting the forecast accordingly. This type of demand sensing uses shipment history which is already readily available in most supply chain planning or ERP systems. In ToolsGroup Service Optimizer 99+ short-term statistical forecasting is standard functionality and a great place to improve your forecast reactivity to recent demand changes and get some quick wins under your belt.

/ 2 When you're ready, incorporate sell-out data. In a demand sensing environment, it's important to start thinking in a different way by asking yourself, "Is there any other useful data out there we could collect and use to improve our forecast?" Downstream data such as customer, PoS or channel data is used to identify demand trends, provide advanced warning of problems, and remove the latency between the plan and what is really happening in the supply chain.

/ 3 There's more! Layer on external data and demand causals. Demand sensing can and should also use the wide range of demand correlated variables to create a more accurate forecast that responds to real-world events such as market shifts, promotions, social media, new product introductions, weather and other external factors.

Putting all three pieces together—the sell-in and sell-out data along with relevant demand casuals—gives you a full, connected picture of demand and enables automated demand forecasting for the best results.

Step Up to a Complete View of Demand



Blend Baseline Forecasting with Machine Learning for Best Results

Sometimes it seems the world is divided into the statistical forecast side and the machine learning side. Using a hybrid approach that employs both methods is key to achieving a robust baseline that is highly responsive and gives insights in layers for an overall better result.

This blended approach uses probability forecasting and machine learning technologies, which work together seamlessly and automatically. Begin with a self-adaptive model for probability forecasting using granular historical demand. This is critical to success with advanced machine learning and yields significant benefits on its own. Further improve this baseline probability forecast by applying machine learning technology on the existing historical data to get a more robust, reliable baseline that accurately models the phenomena shaping the demand. Then layer on more sophisticated machine learning using external data sources.

Demand Sensing Benefits:

Reacting Faster to Market Changes Drives Better Results

- Improve forecast accuracy by 15-40%
- Decrease inventory by 20-30%
- Improve customer service level 2-5 percentage points
- Increase sell-through and reduce markdowns
- Reduce unsaleable goods/waste
- Improve planner productivity with machine learning automation

Promotions, media, new product introductions and other demand shaping activities cause trends to shift rapidly and dramatic increases in demand variability. Your best weapon to reduce variability and guarantee high service is inventory. Demand sensing helps you wield inventory properly by extracting signal from noise to improve your forecast, reduce demand variability and minimize inventory to guarantee service to customers.

"Consumer products companies have reported forecasting improvements of 15% to 40% at the item level when first integrating demand sensing, and have received further accuracy improvements after the full incorporation of POS data."

- Gartner2

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Ready to Get an Edge on Your Competition?

We've Got Your Back.

To surpass competitors, you need to be ready for whatever tomorrow will bring. Demand sensing offers a significant opportunity to improve both your top and bottom line by reducing the clock time between customer purchase and manufacturer order. By improving visibility to customer demand, you're able to be more reactive to market changes, spot trends far in advance and anticipate customer needs.

Learn more at **toolsgroup.com**

"By preparing companies for a wider digital transformation and enabling a truly connected end-to-end supply chain, demand sensing not only delivers substantial benefits in sourcing, manufacturing, warehousing and distribution but also lays the foundation for new data-driven business models with increased consumer interaction."5

Resources

1 http://www.supplychainshaman.com/demand/learning-to-speak-the-language-of-demand

2 Gartner: When Will Consumer Products Companies Be Ready to Make a Demand-Sensing Investment? Refreshed 5 July 2018, Published 13 February 2017 - ID G00319661

3 Gartner: Achieving E2E Supply Chain Capability Is Much More Than a Good Demand Signal. Published 23 September 2019 - ID G00450414

4 https://www.forbes.com/sites/louiscolumbus/2015/07/13/ten-ways-big-data-is-revolutionizing-supply-chain-management/#779427b769f5

5 https://www.sourcingandsupplychain.com/demand-sensing-nextgen-supply-chain-technology/