



Operations And Supply Chain Management



A Better Way to Match Supply and Demand in the Retail Supply Chain

Every organization across the supply chain should rely on retailers' forecasts of end-customer demand. **by Mike Doherty and George Stalk, Jr.**

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Published on HBR.org / December 01, 2022 / Reprint [H07DO1](#)



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The ongoing supply chain crisis threatens the success of retailers and their suppliers because its volatility makes both overstocks (having something customers don't want) and stockouts (running out of the items they desire) more likely. And the stakes are high: Stockouts can cost retailers their total gross margin. Overstocks, if they are lucky, cost retailers 50% of their gross margins but more likely, all the margins.

A methodology we call *flow-casting* offers a way to escape the drag on profits of overstocks and stockouts. Flow-casting is different from forecasting. It develops only a forecast of sales to end users at the retail store level (i.e., consumers), and this forecast is then used to calculate all demand and inventory flows for each element upstream in the supply chain. It is designed to plan inventory, replenishment, space, and resource requirements throughout the retail supply chain over a long-term planning horizon (typically 52 weeks or more). The key is these projections are updated daily or weekly and provided to all elements of the supply chain simultaneously.

Having all players in the supply chain use demand projections based on a forecast of end-customer demand differs from the way most supply chains in the retail sector operate today. Currently, the elements of most supply chains see demand as orders from its direct customer, not the end consumer. As a result, each element finds itself chasing demand that does not reflect true consumer demand. This pursuit results in wild swings in perceived supply and demand along the supply chain known as the *bullwhip effect*, which drives overstocks and stockouts.

How Flow-Casting Works

The steps in developing flow-casting plans are the following:

1. The retailer generates a forecast of consumer sales, in units, that extends a year or more into the future for every item in every store, including any planned sales uplifts from promotions or other marketing initiatives.
2. The retailer's sales forecast is deducted from its current store inventory and used to calculate projected inventory levels and future shipments needed from suppliers, which the retailer shares with suppliers.

3. Based on the projections, all elements of the supply chain calculate all required labor, space, equipment, and capital resources necessary to acquire, make, transport, store, and deliver products from the final point of manufacture to the final point of sale.

This process can be done manually but it's best if it's automated — first at the retailer and then throughout the supply chain. That said, some smaller suppliers may simply input the projections into the spreadsheets they use for planning.

This system provides retailers and their suppliers with a new kind of visibility — a forward-looking, daily, or weekly projection of demand, supply, and inventory by item and location. The implications for retailers and their suppliers are significant. Flow-casting not only eliminates the need for suppliers to forecast their retail trading partners' needs; it also ensures that the unified supply-and-demand picture along the entire supply chain is being resynchronized daily. By doing so, it greatly reduces overstocks and stockouts and substantially minimizes the bullwhip effect.

If there is some aspect of the future that might impact sales or inventory, it's in the flow-casting plans. For example, suppose a retailer plans to open several new stores. These stores would have a sales forecast by product, which would be included in the flow-casting plans.

Flow-casting is best initiated by the retailer. However, if you are a key supplier to a retailer, you can take the initiative to jump-start the flow-casting methodology. For example, a key supplier to one of the largest discount retailers used information from the retailer's point-of-sales data (with the retailer's cooperation) to develop a flow-cast for the retailer by store to the retailer's distribution center to the supplier's distribution center to the supplier's factory. This retailer experienced

improvements in in-stocks (to 99% from 97%) and a 20% reduction in overstocks.

The Risks and the Costs

The risk in transitioning to flow-casting is that companies fail to understand that this is a process and mindset change, and therefore the transition needs to be managed as a change-management initiative, not just a technology upgrade. That requires people within the retailer and supplier network be educated, trained, coached, and supported as they learn and gradually grow accustomed to the new ways of working.

This transition usually takes two to three years — largely because large retailers have hundreds of key suppliers and thousands overall. Flow-casting should be run in a simulation mode prior to becoming operational so that all key stakeholders in the retailer and at key suppliers can see what the system's projections based only on forecasts of consumer sales look like, giving everyone time to minimize surprises when the system goes live.

The investments to implement flow-casting include the costs of new technology, system integration, data integrity efforts (like cleansing sales history for abnormal selling periods and events such as weather-related interruptions), teaching people the concepts of the approach, training them how to use technology to execute the process, and supporting them. In our experience this has amounted to less than a quarter of one percent of annual sales.

Flow-Casting in Action

Princess Auto, a retailer of automotive after-market parts and related products and tools that has over 50 stores throughout Canada, is an early adopter of flow-casting. Its stores consistently achieve daily *in-stocks* (i.e., customers can find the items they want to buy) of 97% to

98%, up from 92% in 2015 — even during promotional periods and, importantly, for products from both domestic and offshore suppliers.

In 2016, the first year that the company used the flow-casting system, its sales increased by more than 10% because of improved in-stocks. (We have generally found that every 2% to 3% increase in in-stock performance results in a sales increase of at least 1%.) Both Princess Auto's store and distribution centers' inventories decreased by more than 10%.

Retailers interested in obtaining the benefits of flow-casting should start by assessing the impact, benefits, and challenges of using this approach. Since flow-casting improves in-stocks and reduces overstocks, the added profits it generates significantly outstrip its costs, and it leads to more satisfied consumers.

This article was originally published online on December 01, 2022.



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