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ModusLink Feature Article

Forecast Accuracy: Myth, Reality or . . . Oxymoron? *A look at how innovation and customer choice are changing the way we approach forecasting and execution*

By Christine Pothier, ModusLink Marketing Manager



New Year's is a time of reflection on both the year that's passed and the one ahead. Nowhere in business is that more true than in supply chain planning. How did your company's sales forecast fare this past holiday season? If your sales forecast hit the target, congratulations, you fared better than many, if not most, businesses. Routinely, companies' accuracy for sales forecasting ranges from 40% to 60%. If those business forecasters were meteorologists, they might well be looking for other employment.

In fairness to company forecasters, their jobs have gotten progressively more challenging in the past decade. This is especially so in the technology industry where a number of factors are wreaking havoc on the planning process:

- technology advancements shorten product lifecycles;
- demand for innovation ignites product line expansion;
- globalization redefines the supply chain landscape and process planning;
- financial pressures influence the balance of cost and service; and
- mass-customization dramatically increases the number of SKUs.

To grow market share and stave off commoditization of products—particularly in the consumer electronics industry—innovation and customization have taken center stage in the form of new product options and accessories. This can be a lucrative sales strategy, but sensing demand is one thing; profitably satisfying it, is another.

It is not uncommon for consumer electronics products to have hundreds of SKUs, varying from basic feature, color, and style attributes to operating software, accessories, language-specific content and packaging. With so many variations of final product available, supply chain strategy becomes critical to profitability. Forecasts that try to account for all of these possibilities have little hope of success. What you don't want to do is forecast a number for each configuration, build them, push them into inventory, and then cross your fingers that they sell.

This type of product landscape requires a well-planned supply chain that can accommodate the dynamic configuration and sourcing requirements of these mass-customized products.

It can be thankless, but is it hopeless?

The one constant in this sea of complexity that serves as both the cause and the solution—is the customer. As businesses try to laser in on customer needs, they have greatly complicated their forecasting capabilities. In fact, it's tempting to wonder if the phrase "accurate forecasting" is an oxymoron.

There is no question that the right tools, technologies and techniques play a key role in building forecasts and their importance is not to be overlooked. Best of breed solutions, combined with much needed human intelligence, can drive alignment of a wide range of planning processes. Raw materials can be procured much more cost-effectively when last minute spot-market purchases are avoided. Logistical services can be obtained at lower prices when you can avert expedited air shipment. And, perhaps most importantly, inventories can be kept lean by reducing the need for costly "buffer" inventory used to hedge demand uncertainty.

However as essential as forecasting is to the success of the supply chain, it is only one of what should be many tools in your demand planning arsenal. Most companies have to employ a combination of *push* (using forecasts to plan in advance of known demand) and pull (using actual demand to trigger inventory cycles) strategies.

Trying to achieve a perfect forecast is like winning the lottery—it's not likely to happen and you better have an alternative plan. To meet demand in a global market driven by customization, forecasts are *helpful*, but execution is critical!

It's all about the execution!

The notion of achieving cost-effective, flawless order fulfillment through the matching of supply and demand is no less valid when attempted with a less-than-spot-on forecast.

Therefore, the real key to success lies in managing the execution of the supply chain to mitigate the risks of demand variability and forecast inaccuracies. Proper execution is essential to ensure that costly inventories do not accumulate in the temporary "buffers" designed to finesse—not create—inventory problems.

One key strategy that brings you closer to being truly demand-driven is postponement or *optimized product configuration*. By delaying product configuration until demand is actual and then performing that configuration at the best location, whether it's a lowest cost or closest to customer destination, companies are better able to meet demand with less excess and obsolescence.

Dell is a recognized master of this strategy and first made it popular in the mid-nineties when it was dubbed configure-to-order.

The following three steps will help you optimize your supply chain execution to more-effectively deal with problematic forecasts:

1. **Segment Products.** Products should be segmented by volume, demand variability, customization and configuration requirements. Products that rank high in these areas are the forecasting trouble spots and need carefully planned execution that operates as close to actual customer demand as possible.
2. **Forecast.** Start with forecasts for basic stripped-down products or product families. These forecasts are above the SKU level and do not include customer-specific configurations and customization. Attribute-based forecasting—which looks at demand for certain types and styles of products—has increased and can be helpful for certain markets but requires extensive data collection and knowledge of the customer. Not all companies have this data available to them.
3. **Condition the Supply Chain.** Mitigate the risk of forecast inaccuracies by leveraging optimized supply chain strategies, such as postponement and late configuration. Effective use of these techniques requires careful analysis to determine the best location and timing to conduct critical processes—from sourcing and configuration to final assembly and fulfillment. By delaying final assembly and configuration until a product reaches a facility close to the customer and demand is more certain, it is possible to respond more efficiently to variable demand signals with less excess. This flexibility in rapid response to global market dynamics is the best panacea for forecasting challenges.

Seven Strategies of Highly Successful Supply Chain Planners	
1	Know the customer
2	Leverage human intelligence—interpret data
3	Utilize the best tools, technologies and methodologies
4	Segment products by volume, demand variability, and customization
5	Forecast for basic products, above the SKU level
6	Condition the supply chain to leverage the best execution strategies (such as postponement or late configuration) to optimize demand response
7	Forecast frequently at various points along the supply chain

In general, products that are good candidates for postponement or late-stage customization have the following characteristics:

- Difference in bulk component versus finished good dimension (e.g., an LCD TV is not as ideal a candidate as mouse or memory card)
- Frequent engineering changes or revisions which make inventory build-up risky
- Constrained component supply (e.g., silicon-based semiconductors)
- Need for allocation of inventory to various world markets
- Multiple finished good configurations that use common components

Become flexible with conditioning

Optimized supply chain strategies also facilitate effective management of the buffer inventories at the push-pull boundary by reducing the amount of product and components needed at any given time to ensure maximum service levels are met. By conditioning the supply chain with optimization at various points along the supply and demand network, the inevitable miscalculations in demand can be dealt with in a cost-effective manner.

For example, when a leading provider of consumer electronic storage products was struggling with long lead times for supply materials and forecast accuracy hovering around 65%, they realized the need to ensure demand variability did not disrupt service. The company worked with their outsource partner to develop a supply chain model that took into account the physical supply chain cost trade-offs, such as materials, lead times, conversion, storage, logistics and inventory, as well as taxes, customs and distance from customer base to determine the best location and timing for each process. By leveraging the low cost of sourcing and production in China for basic products and delaying final configuration, packaging, and regionalization until products reached regional facilities-to meet actual demand for orders placed-the manufacturer was able to reduce supply chain costs by \$32 million and inventory levels by 41%.



This conditioning enables companies to rapidly sense and respond to changes in demand. In a worst case scenario, by postponing configuration companies who forecast poorly are left with raw materials, components, and stripped down base products that can be easily put back into the forward supply chain to meet demand elsewhere. This is an extremely attractive way to mitigate risk, compared to having to disassemble, reconfigure, repackage or dispose of fully-customized products when forecasts don't hit the mark.

Strengthening the weakest link

Business forecasters needn't be apologetic; the complexity of their task today would vex even a Delphic oracle. Of course, there are a number of tools and techniques that should be used to drive greater forecast accuracy. Additionally, lagged forecasts that update frequently at various points along the supply chain can help improve accuracy. Lastly, human capital is essential to interpret the data and convert it into usable information. However, in the grand supply chain scheme, it is not so much about being 100 percent accurate all of the time (a highly unattainable feat in most industries); rather, it is the flexibility of the supply chain model that will lead to bottom-line results. It is important to remember that a forecast is a starting point for demand sensing. Meeting actual demand efficiently and cost-effectively is truly about supply chain conditioning and streamlined execution.

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