

# Traffic World



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## Building Inventory's Crystal Ball

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With supply chains extending these days as fast as the economy is growing and more inventory on the move even as transportation costs are soaring, it's no longer enough for shippers to manage the inventory they have. The big question now before manufacturers and retailers, say experts, is managing the goods they will be holding, storing and shipping in the weeks and months ahead.

That's because new inventory strategies built around risk management, along with longer and increasingly complex supply chains and attempts to bring inventory closer to more customers at interim distribution centers, are challenging logistics managers to maintain the gains they made through two decades of slashing inventory costs.

"What used to be two days (in transit) now is 21 days, plus or minus five days," said Matthew Menner, who moved from Manhattan Associates to technology provider Optiant this year as senior vice president of sales and marketing. "Supply chains are longer with a greater amount of reliability. But that requires a greater rigor in planning prior to developing a supply chain.

"It boils down to, how do I balance and weigh inventory costs versus satisfying customers?"

There's no easy answer to that question in an era when demand for transportation capacity is, in many areas, outstripping supply.

With lean inventory strategies seemingly run dry, the key focus for shippers and their logistics providers is on understanding better what is moving through supply chains. That is putting more pressure on companies to improve their forecasting, the gray area in any supply chain where the sales and marketing business meet the operations division and those charged with executing logistics options.

There are a growing field of technology providers offering programs that do what many have believed was all but impossible, plotting out forecasts for a variety of industries and, in turn, turning what has been considered something of an art into something closer to a science.

In retail shipping, the target is the Perfect Order: getting forecasting, sales and supply chain execution in perfect synchronization.

The Aberdeen Group said in a report issued in December 2004 that companies that use demand management added an average of 4.7 percentage points to their gross margins, improved inventory turns 24 percent and increased forecast accuracy by 13 percentage points.

Yet in its "Lean Strategies Benchmark Report," the research and consulting firm said, "Ninety-three percent of (manufacturers) still rely on spreadsheet and paper-based solutions to perform high-value functions such as line design and load leveling production."

Forecasting in the supply chain got a boost with Wal-Mart's CPFR -- for collaborative, planning, forecasting and replenishment -- strategy in the 1990s, but as San Mateo, Calif.-based software provider JRG noted in a white paper on forecasting, the results in consumer goods actually got worse. Surveys by the Grocery Manufacturers of America showed monthly item-level error rates in forecasting grew from 23 percent in 1996 to 44 percent in 2002 at a shipping location level.

A new breed of technology providers is trying to fill that gap, however. JRG, with its "build to consumption" demand-driven manufacturing approach, and Terra Technology's Real-Time Forecasting for supply chain management are offering software that aims to reduce the huge cushions of inventory manufacturers and retailers keep on hand and in transit.

Campbell Soup, for instance, cut its forecast error rate in half, from more than 40 percent to about 20 percent, with Terra Technology's RTF, a sophisticated software aimed at consumer goods businesses managing what the Connecticut-based company calls the demand-driven supply network.

"Our inventory is in a far better place than it has been for the last two or three years," said Steve Cortese, director of supply chain implementation at Campbell.

"We had limited visibility and were using manual systems, manually collecting the information from our warehouses and from that we were determining how much safety stock, how much pre-build, how much excess inventory was on hand, how much was in transit," he said.

Terra's technology works on a two-month horizon, said CEO Robert Byrne, a point where strategies such as postponement must meet real shipping demands. "That demands significant reforecasting every day," he said.

"In consumer goods, you may have an error rate of 50 percent. If you are forecasting 10,000 unit sales, half the time it is going to come in between 5,500 and 14,500, and that is a 45 percent error rate that, if you can correct it, you have tremendous savings on your costs," Cortese said.

With a safety stock standard in the consumer goods industry of about 40 percent, large suppliers such as Kraft Foods may have \$2 billion of stock on hand; Procter & Gamble may have double that.

"Safety stock is there to cover mostly demand uncertainty," said Byrne.

Terra's RTF software drills down past the usual forecasting tools such as seasonality to recognize patterns. But is there an inventory equivalent of manufacturing's "zero

defects" goal, a "zero inventory" Holy Grail?

"No," says Byrne. "In consumer goods, you may get it in the teens and low 20s. The best we think you can do is 13 to 14 percent for an entire division. After we were live with Campbell's for a year, they went from 46 percent to 23 percent."

"Campbell's is 80 percent accurate by item location. At the truck level, the warehouse level, the accuracy is quite good. That helps plan your staffing and your transportation purchasing. It helps in (adjusting to trucking hours of service restrictions)," he said. "By accurately knowing your inventory and distribution requirements, you can optimize your use of available capacity."

"You get a lot more stability in the supply chain, you have a better manufacturing schedule," he said.

Supply chain experts say the drive to better forecasting is coming as new logistics strategies seek to adjust supply pipelines to globalization.

"We're seeing more customers keeping more inventory closer to their customers. If you keep it closer, you can reduce your safety stock," said Leslie Aljouny, vice president of business development at logistics and warehousing provider Evans Distribution.

"Even though supply chains are longer, they are managing inventory more efficiently," she said. "We're seeing more planning and forecasting models and we see more on the horizon. We have more visibility in our customers' system and they have more visibility in our system, visibility in our warehouse and transportation."

"Every industry is challenged by forecasting. It drives everything," she said.

Menner, senior vice president of sales and marketing at Boston-based Optiant, an inventory optimization software provider, says one challenge to achieving what the company calls the "efficient frontier" is matching supply chain forecasting to customer service.

"Inventory has shifted to the backs of the upstream supplier. They apply the rules of thumb, which include such things as two weeks of coverage so you don't see stock-outs," he said.

But technology is making it possible to target that coverage. "We're getting to a more granular understanding of the supply chain," said Menner. "It's within the grasp of the manufacturers and they can surgically apply to the variability."

For Campbell Soup, the new system started at basic levels by focusing on internal collaboration under a sales and operations planning analysis.

"We have the data now to drive that down to that down to forecast at the item level," said Cortese.

"We've taken the weekly forecast error rate down and since you have inventory level visibility now, you can fine-tune your safety stock strategy, what your front position will be in the warehouse, what pallet positions you'll have; it helps you get in front of that for distribution," he said.

"You better understand your rolling daily freight capability needs so you can really see and understand what you're going to move by the day and what transportation you're going to need," Cortese explained. "That heads up saves money across the board."

Campbell Soup, which integrates the technology to its Manugistics management tools, had to first examine the underlying supply chain processes, including forecasting accuracy. "We found we had a lot of broken sub-processes. We found that our day-to-day forecasting perspective was broken. We found that processes were broken at the execution level so we needed a way to get better data at that level," Cortese said.

Reliable forecasting, says Byrne, can be applied upstream and downstream.

"The vast majority of raw materials (in consumer packaged goods) are ordered in an eight-week time frame. Campbell's has compressed its manufacturing cycle from eight weeks to two-to-four weeks. That is in a sense, postponement in practice.

"But I haven't seen many in consumer goods tackling why they don't use the same tools all the way to the raw materials stage," Byrne said.

"There is a huge opportunity for manufacturers to manage their raw materials as closely as they manage finished goods. But I don't see people even monitoring their supply chain at that level." he said.

"If you really know your demand, you should be able to use forecasting all the way through the supply chain."