

This Demand Signal Is Crystal Clear: Less Push, More Pull

BY JEAN V. MURPHY

The pressure is on for companies to employ demand-driven strategies — technologies and processes that can “sense” and communicate real-time demand across customers, suppliers and employees.

Despite all the lip service that has been paid to industry's need to move from a “push” to a “pull” manufacturing and inventory model, most supply chains today still are driven by factory production rather than consumer demand. But with margins squeezed at every turn — and with no let-up in the consumer's appetite for more choices — pressure is building for companies to stop talking and start delivering on demand-driven strategies.

AMR Research, Boston, is aggressively advocating this approach with its Demand-Driven Supply Network (DDSN) model. AMR defines DDSN as “a system of technologies and processes that senses and reacts to real-time demand across a network of customers, suppliers and employees.”

“Proclaiming that the customer is king is not enough,” says an AMR report. “Rebuild-

ing the old push supply chain is essential to compete for profitable growth in the 21st Century business world.”

AMR has developed a roadmap for companies to use in making the transition to and through its four stages of DDSN development, which it labels as reacting, anticipating, collaborating and orchestrating. Today one-third of all companies fall into the reacting-to-demand category and more than half fall into anticipating demand. Over the next few years, AMR expects that many of these companies will move into the higher two categories, which are more about synchronizing demand and supply.

The key to that upward progression is better demand visibility. AMR's benchmarking research shows that in every industry better demand visibility is directly correlated with better perfect-order fulfillment, to the tune of a 2:1 hit. “A one-point improvement in your demand forecast

accuracy can get you a two-point improvement in your perfect order score,” says the research firm.

Fortunately, DDSN does not require a wholesale replacement of technology platforms, but rather a different approach toward incremental investments. “Companies must reorient their thinking to enable the use of all demand signals to improve decision making in downstream applications and processes,” say AMR researchers.

There are many pieces to getting better visibility and, thus, better forecast accuracy. One crucial element is collaboration, internally as well as externally.

“We see a lot of our customers really moving toward consensus forecasting within the four walls,” says Carey Kauffman, senior director of marketing at Ross Systems, Atlanta. “They are striving hard to improve their business processes as well as the tool sets to help them get the key inputs

they need for their demand forecasts.”

Sales and operations planning (S&OP) is the core process to accomplish this goal. “Whether they call it that or not, most companies are doing some form of S&OP,” says Kauffman.

“Sales and operations planning is a process for collaborating internally to keep all your operational planning in sync,” notes Lisa Plaskow, director of solutions management at Manugistics, Rockville, Md. Companies typically have a monthly process, she explains, where the forecasters get together with inventory planners, production people, and sales and marketing representatives to review the key things going on. They particularly review and resolve exceptions to the long-range plan, adjusting operations as necessary. If a product is not moving as well as anticipated, for example, a promotion might be approved. Or if it is selling better than expected, production plans might need to be altered. The

important thing is that everyone agrees on one number and understands how that number drives decisions.

S&OP Tech Support

While primarily a people-based process, technology can help companies manage S&OP. Manugistics Demand Management suite, for example, provides analytical and reporting support. “Our tools make it easy to generate the reports needed for the S&OP meetings and they have analytics to show the impact that different decisions will have across the plan and throughout the organization,” says Plaskow.

Litehouse Foods, an Idaho-based maker of salad dressings, sauces and dips, used solutions from Ross Systems to improve its internal forecasting process. “By achieving a correct one-number forecast for the entire company, we can now plan, modify and manage at the customer

level like never before possible,” says Bill Hawkins, COO for Litehouse. “This data is turned into useful information that allows us to proactively plan for trade promotions, improve overall collaboration with our trading partners and, through this, increase customer satisfaction.”

Rickitt Benckiser, a consumer packaged goods manufacturer whose brands include Lysol, Vanish and Calgon, uses S&OP and forecasting solutions from Demand Solutions, St. Louis, for its operations in Australia, where the company’s strategy is to command the first or second position in each of its categories. Rickitt Benckiser formed an S&OP team with representatives from sales, marketing, distribution and R&D, a combination that allows the company to integrate product development activities and product promotions into overall management objectives. The company



reports that this disciplined approach, which allows it to manage its brands using one set of numbers, has been very successful to date. In line with its goals, the company now generates a full 70 percent of its grocery store sales from products that command either the first or second position in their segments.

Collaboration

Anne Omrod, CEO of John Galt Solutions, Chicago, says the S&OP solution from her company — part of the Atlas Planning Suite — helps users focus on the gaps between various groups' plans: sales, marketing operations and finance. Companies are able to aggregate and reconcile any level of data, bringing many plans together into the one number plan and that agreed on num-

how accurate different inputs have been in the past and that information is visible up and down the hierarchy."

Customers that have implemented Demand Consensus typically realize a 30 percent incremental improvement in forecast accuracy, Carlson says. This figure can be as high as 50 percent of 60 percent for industrial manufacturers, "which have not gotten a lot of value out of traditional statistical forecasting," he adds.

Sharing demand information outside the four walls also is becoming more prevalent, though not necessarily through a formal process like Collaborative Planning, Forecasting and Replenishment (CPFR), says Jane Hoffer, CEO of Prescient Systems, West Chester, Pa. "We are seeing much the same kind of evolution with col-

product supply at PaperPak. "If we want to keep a 98 percent or 99 percent service level, the system figures out what orders we need to send to keep those service levels intact, while building as many truckloads as possible." While this VMI program was started to comply with a mandate from Cardinal, it has evolved into a win/win collaboration that PaperPak is preparing to extend to other customers. Since implementing the system, PaperPak was named Cardinal's Supplier of the Year.

To effectively manage demand, collaboration also needs to occur between manufacturers and their suppliers. This is especially so when contract manufacturers are involved, a factor that adds "a whole new challenge around control" says David Haskins, executive vice president of devel-

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ber is used to drive production. "Whether you are struggling to get started with S&OP or have an S&OP process that needs to evolve from a time-consuming and emotional process into a business-focused planning cornerstone, our solution provides a solid foundation," she says.

PeopleSoft, Pleasanton, Calif., has developed a product called Demand Consensus to enable both internal and external forecast collaboration. "A lot of different stakeholders collaborate on the forecast, so Demand Consensus is a framework to allow all of those inputs and to store them, so they can be measured for historical accuracy," says Andy Carlson, vice president of product marketing. The traditional statistical forecast is one of many inputs, all of which are weighted based on their accuracy record.

"You can't hide behind bad forecasting in this environment," Carlson says. "Part of the way we reach consensus among the various parties is to be very open about

laboration that we saw with e-commerce," Hoffer says. "At first it was this great, new-fangled thing, but now it is just the way business is done." In the retail sector, this trend has been accelerated by the Wal-Mart threat. "Retailers have woken up to the fact that they have to get closer to their suppliers to make sure their on-shelf performance is there," she says. "So we are seeing a lot more sharing of scanned sales information, a lot of EDI exchange of forecasts and other advanced commerce initiatives that tie retailers to suppliers."

This applies to other sectors as well. Prescient customer PaperPak, a \$160m global manufacturer of personal hygiene products, receives daily reports from its largest customer, Cardinal Health, on PaperPak's inventory status at Cardinal's DCs as well as the prior days' product shipments. This information is fed into the Prescient system, which generates a report of exceptions to the forecast. "We approach this by service level," says Lisa Anderson, vice president of

opment at Webplan, Ottawa, Ont. Webplan's RapidResponse product is designed to help contract manufacturers and OEMs immediately understand the impact of a forecast change. "The core of our focus is to understand the inventory liability of a change in plan," says Haskins. A certain amount of flexibility — perhaps plus or minus 20 percent — may be built into a production contract, but beyond that penalties accrue. When a change outside of those parameters occurs, "a dialog needs to happen to ensure that this is the right forecast change and the appropriate action," Haskins says. RapidResponse facilitates that dialog by evaluating changes to either demand or supply simultaneously and immediately calculating the inventory liability that would result.

Volume and Variability

Another method to get better forecast accuracy and, consequently, better supply-demand alignment is by doing volume and

variability demand profiling, says Kate Vitasek, managing partner at Supply Chain Visions, Bellevue, Wash. Companies today typically categorize products as A, B or C items — based on volume — and treat all of the items in each category the same in terms of forecasting demand and setting inventory policy, she says. This misses the fact that within each category are items with very different patterns of variability. “You can plan for the non-variable items pretty easily,” she says, “but then these high variables come in and it blows away all the components in your facility. So you end up being short on your A SKUs because you put key components against this random, high-volume order for a B item.”

Mixed-mode Manufacturing

The solution is to categorize items based on variability and volume, she says. “Then you can use different techniques in your facility. Instead of having to choose between a make-to-stock, make-to-order or build-to-order model, a company may be able to do all three, depending on which makes the most sense for particular SKUs.”



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For example, she says, a manufacturer of music CDs may treat high-volume, low variability items as make-to-stock. The choice for lower volume items with a higher variability may be to stock only spindle-stored CDs, printing the media and sleeve on demand. Highly variable, low volume items may not be stocked at all, but will be created with a CD burner as orders come in.

“This kind of flexibility previously was not possible,” she says, but newer versions of enterprise systems like SAP and Oracle 11i enable mixed-mode manufacturing. “This allows you to really optimize the demand chain, using strategies and tools that are best for each SKU.”

Demand Solutions has a different approach to handling variability without high safety stocks. After research showed that traditional means of calculating safety stock consistently resulted in more inventories than was needed to meet target service levels, it developed a process called Service Level Optimizer. Service Level Optimizer is designed to first calculate the service level that would be reached with no safety stock and then add a unit at a time until the

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desired service level is reached. The difference, explains Mike Campbell, president and CEO of Demand Solutions, is that to achieve a 95 percent service level you find the number that represents 95 percent of demand, not 95 percent of the absolute forecast error, as is typically done. "Our new methodology was developed because we came to the realization that traditional methods are inadequate and just plain wrong," Campbell says.

Granularity of Forecasts

Forecast accuracy becomes more difficult as granularity increases. Getting it right at the store or SKU level is a lot more difficult than hitting an aggregate number. Part of the problem is the sheer amount of data involved. "At the warehouse level, perhaps there are 60,000 SKUs to forecast, but a large retail chain may have 2,400 stores," says Plaskow. So the number of separate item/store combinations is in the tens of millions or even the hundreds of millions. Manugistics is one of the few applications able to scale at this level, she says.

Sears recently selected the Manugistics solution as part of its five-year effort to revamp its merchandising systems. It will use Manugistics applications to forecast at the store level for its 870 full-line stores. For each Sears store, Manugistics will provide a unique, time-phased inventory plan that considers predicted demand at the store, promotions, seasonality, lead-time variability, allocations and incoming stock across the network. The system will also look at supply and demand across the network and generate allocation and replenishment recommendations for planners and alert them to potential problems.

"These solutions will help us continue to have the products our customers want in the stores when they want them, providing the superior shopping experience they expect from Sears," says Steve Poplawski, vice president of merchant operations. "At the same time, all of the efficiencies that flow from increased forecast accuracy will help us meet our goals of increasing sales and reducing operating costs."

New product introductions are another challenge for demand planners, since there are no historical sales to use as a guide. Precient recently introduced Group Analyzer, an extension of its analytics tool, to help companies with this issue. "This application can take a product that is brand new

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and look at a group of like products, then slice and dice the information in a lot of different ways," says Hoffer. One CPG customer that introduces between 2,000 and 3,000 new products each year is using Group Analyzer to develop sales and revenue projections for new products prior to introduction. "This product ties into our philosophy of solutions that are implementable and useable without a lot of ongoing maintenance. It is designed to work with data that companies already have," she says.

Not a Single Number

While companies continue to work toward the most accurate forecast possible, they are well aware that no plan will ever be 100 percent right. Consequently, good demand management also includes the ability to sense and respond to changes as they happen.

"Demand isn't really a single number, it is a probability," says Jeff Bodenstab, vice president of ToolsGroup, Boston. "There is a lot of volatility and trying to get exactly the right inventory to meet demand is a little like trying to pick stocks, especially if you are dealing with tens of thousands of SKUs. It helps to think of demand not as single number but more as a bell curve. The actual number will fall somewhere along the curve." ToolsGroup uses stochastic modeling, which is based on algorithms that take variability into account, to determine optimal inventory levels and placement, says Bodenstab. "Our role is to basically help companies translate demand and demand volatility into actual placement of inventory in stores and in the distribution chain to meet the various different possible demand outcomes."

"True demand management isn't just sales forecasting," says Charlie Allieri, vice president of marketing at Lilly Software, Hampton, N.H., which makes the Visual suite of products. "It is also about having visibility into your plant capacity, visibility to raw materials, to work in progress and to finished goods in the warehouse — all those assets are needed to deliver on your customer demand." The key, he says, is having the right planning tools within your organization to execute on the shop floor so that your manufacturing and scheduling options allow you to respond very quickly to changing demand signals. "You can see this trend is if you go to any



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manufacturing conference," he says. "One of the major topics is 'lean,' and being truly lean means shifting your organization from a standard push mechanism to one driven by demand."

Valdero, Palo Alto, Calif., has solutions that help companies improve response to changing demand by optimizing finished goods inventory, based on business objectives and rules. "We help companies get a single global view of demand and prioritize fulfillment around a business objective, such

as margin, strategic customer relationship or contract commitment," says Singh Mecker, CEO. "Who is important today? If you have only 100 of an item, whose orders get filled?" By basing such decisions on established objectives, he says, the net result is more accurate ship-to-commit dates and an overall reduction in order cycle time. ○

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