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Demand-Driven Supply Chain Meets Offshoring

Looking to go offshore, or improve your current offshore operations? A demand-driven supply chain strategy may be the answer. Here's how to build one.

By Mike Ledyard and Bill Keough



"I'd like the filet mignon—please make that well done, but juicy!" As anyone who's ever waited tables knows, sometimes the requests you get are just unrealistic.

But is this particular customer's order any less realistic than the CEO announcing: "I'd like to move all production to China, but without increasing inventory or affecting service levels!"?

Fortunately, we as operations managers have more tools at our disposal to respond to the CEO's request that the waiter has to that diner. This column addresses those options. We assume that you have weighed the impact on your total cost to serve and ability to meet your customer demands, and have determined that off-shore sourcing and/or manufacturing is your best option. Our goal here is to help you improve that performance, especially as the speed of market change continually increases, and customer demands intensify. Simply put, we believe that the key to success in the global arena lies in two critical activities: (1) improve the demand signal and (2) decrease the response time.

Improving Demand Signal

We've all heard the joke about there being two kinds of forecasts—"Lucky and Lousy." In the world of consumer products, in fact, 75 percent forecast accuracy is often viewed as Best Practice. There are, however, things that can be done to "improve one's luck."

Sales & Operations Planning (S&OP), properly executed, can often be a big part of the solution. S&OP is a set of processes and technologies that enable a company to more effectively anticipate and

balance demand and supply.

In addition, there are plenty of software packages to aid you in your forecasting efforts. The first step in evaluating possible packages is to document what information you have available, what information you need to make decisions, and the gap between the two.

Ultimately, what we're seeking is a "demand-driven supply chain." AMR Research has defined DDSN as "a system of coordinated technologies and processes that senses and reacts to real-time demand signals across a network of customers, suppliers and employees."¹ A key to this concept is the generation of a high quality, credible demand signal that can be shared across supply chain partners, preferably in real time.

Shortening Response Time

In addressing the second imperative, response time, we must strive to improve in three areas, articulated by Hau Lee and defined as follows:²

- Agility—able to adapt quickly to short-term changes in supply and demand.
- Adaptability—able to meet shifts in the marketplace, including new technologies, products and geographic location of supply and demand.
- Alignment—achieve a common vision, goals and incentives with supply chain partners.

More so than the other two elements, agility is highly dependent on accurate and timely information. A company must be able to quickly identify changes (in either demand or supply) and be able to rapidly disseminate this information to everyone in the supply chain who needs to act upon it. The only way to do this effectively is by establishing the processes and technical infrastructure that makes rapid response possible.

Needless to say, this must be done in a seamless, coordinated manner as quickly and cost-effectively

Mike Ledyard (Mike@SCVisions.com) is a partner in Supply Chain Visions, a consulting practice specializing in supply chain strategy and education. Bill Keough is a principal with the firm.

as possible. A company will benefit little if it designs great products to meet identified customer needs, but is unable to rapidly produce and distribute those same goods. An agile company has both the IT infrastructure to communicate near-real time information with its suppliers and customers as well as the business processes in place to use this information in making wise commercial decisions.

The following example shows the agility concept in action. One make-to-order office furniture company we worked with had built a very successful business by allowing customers to custom-configure office furniture on-line. The company commits to deliver that furniture in five days—a tall order for any manufacturer! The company had leaned out many of its processes. Its manufacturing assembly line was efficient and well-managed. But their material supply chain extended into Asia and the demand for a custom-configured product was not known until the last minute.

This company balanced its low cost off-shore manufacture of subcomponents with domestic assembly of the finished goods upon receipt of customer order. Rather than trying to forecast finished goods at the individual level, it forecasted at the aggregate level, and held inventories of the components. Aggregate level forecasting reduced forecast error substantially. The company had also designed its product line to use combinations and permutations of a limited number of components. As a result it was able to hold lower inventory levels (in both dollars and volume) than if it had held finished goods.

A key consideration related to agility is lead time. Specifically, companies need to investigate what steps will be necessary to reduce the lead time from receipt of order to shipment of goods. And what information must be exchanged (manually or automatically), and with what frequency to achieve the desired results?

For example, at a toy company, we sat down with the suppliers to understand the barriers from their point of view. Specifically, what was stopping us from shipping an order within four weeks of receipt of that order. Most often it was a material issue. We addressed those with Material Authorizations (MA)—a legal document authorizing the supplier to purchase a specified quantity of material in advance of a purchase order. The supplier was then able to ship quickly, and in most cases was able to control his total cash flow to be no greater than his normal lead time without the MA.

The Business Benefits

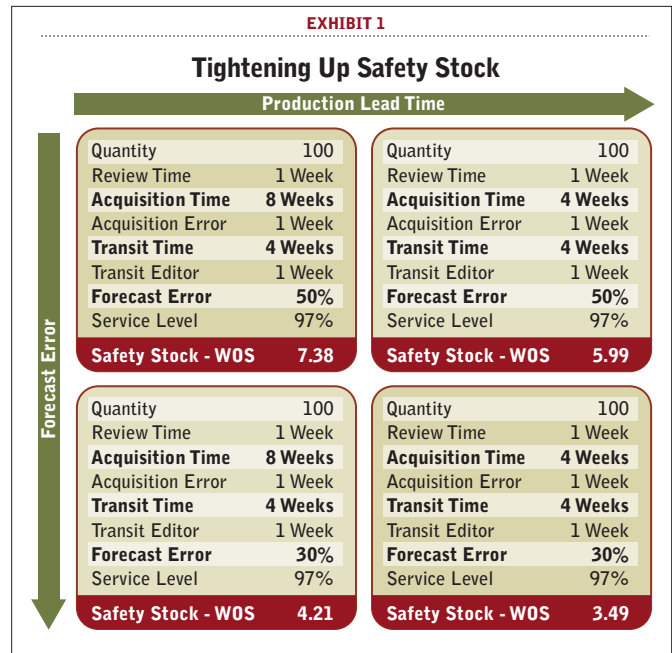
The following case spotlights the impact of improved demand signals and greater agility and responsiveness on the bottom line. The information in Exhibit 1 refers to an importer of kitchen appliances from China. The company’s manufacturing lead time was eight weeks, and it had forecast error of over 50 percent. To maintain a 97 percent service level, this importer had to carry more than seven weeks of extra safety stock.

By reducing its forecast error to 30 percent (70 percent forecast accuracy), the company would be able to reduce its safety stock by approximately three weeks as illustrated by comparing

the upper left quadrant to the lower left quadrant in the exhibit. The drivers enabling were twofold: Forecast at the aggregate product family level, and delay final assembly to finished goods as long as possible.

An important first step in this effort was to improve the flow of information between the sales group and the operations team by implementing S&OP as a formal process, including monthly executive reviews

Next, the company focused on acquisition time. If it could only improve acquisition time (order to shipment), even without improving forecast error, it could still take out over two weeks



of safety stock (moving from upper left to upper right on the exhibit). This involved some minor changes in product design as well as some major changes in communication with suppliers to allow them to procure the right raw materials and have them on hand before the orders were placed. These actions allowed the importer to cut its safety stock by almost four weeks (upper left to lower right). At this company, one week of safety stock was worth about \$8.8 million. So the savings in interest alone was calculated at \$600,000 annually per week removed. Remember, that’s cost of working capital, so the savings recur annually!

So it is possible to run a high-service, inventory-lean global supply chain. Focus on improving the demand signal, and decreasing the response time. It will not make a well-done steak juicy, but it will allow you to make your off shore sourcing more responsive to your demand driven supply chain.

Footnotes

- 1 Vinay Asgekar, “The Demand Driven Supply Network,” *Supply Chain Management Review*, April 2004
- 2 Hau L. Lee, “The Triple-A Supply Chain,” *Harvard Business Review*, October 2004