Demand Management: Measuring the Parts to See the Whole

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Are your employees truly managing supply and demand? Not if they don't have the right information.

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Most companies think they do a good job of managing supply and demand. Senior managers will often state they are customer-driven. After all, they have whole departments focused on the issue and many have instituted enterprise resource planning (ERP) systems to automate the process. They spend hours of staff time to implement the sales and operations planning (SOP) process to stay on top of their markets.

Unfortunately, many of these companies are like the three blind men trying to figure out what an elephant is. In this old story, the first blind man grabs the elephant's tail and declares "This is a large rope." The second grabs the elephant's trunk and declares, "No, this is a snake." The third takes a ladder, climbs up the elephant's side and says, "No, you're both wrong—this is a large wall."

Like the blind men, many companies are attempting to manage customer demand through "the system" and by looking at isolated functional parts of the business without any context. They are making decisions based on incomplete information that does not include an understanding of the key strategic imperatives that must guide a company's business operations.

Consider these examples:

- A market-leading eyewear manufacturer gears up for a new market segment requiring the company to design and sell high-fashion designer sunglasses using a three-month process, only to discover that its manufacturing operations are working on a nine- to 12-month process.
- A food manufacturer attempts to meet the requirement for a broad range of products by a key customer and discovers that not only does it not have the required capacity in some cases, but that it lacks an accurate measure of its capacity by production line and does not know how production capacity and indi-

vidual market segment requirements match up.

• Top management of a high-technology medical device manufacturer foresees and establishes sales plans for high growth in a critical market segment. After the company repeatedly misses growth targets, an investigation finds that the factories are mired in a policy to implement design changes immediately, no matter how nonessential. The policy was a carry-over from the R&D-focus days.

What these companies have in common is that, in spite of having good business and financial systems, they lack an integrated understanding of how they should manage the true customer value drivers and demand changes in their business, from top-level planning down through factory execution.

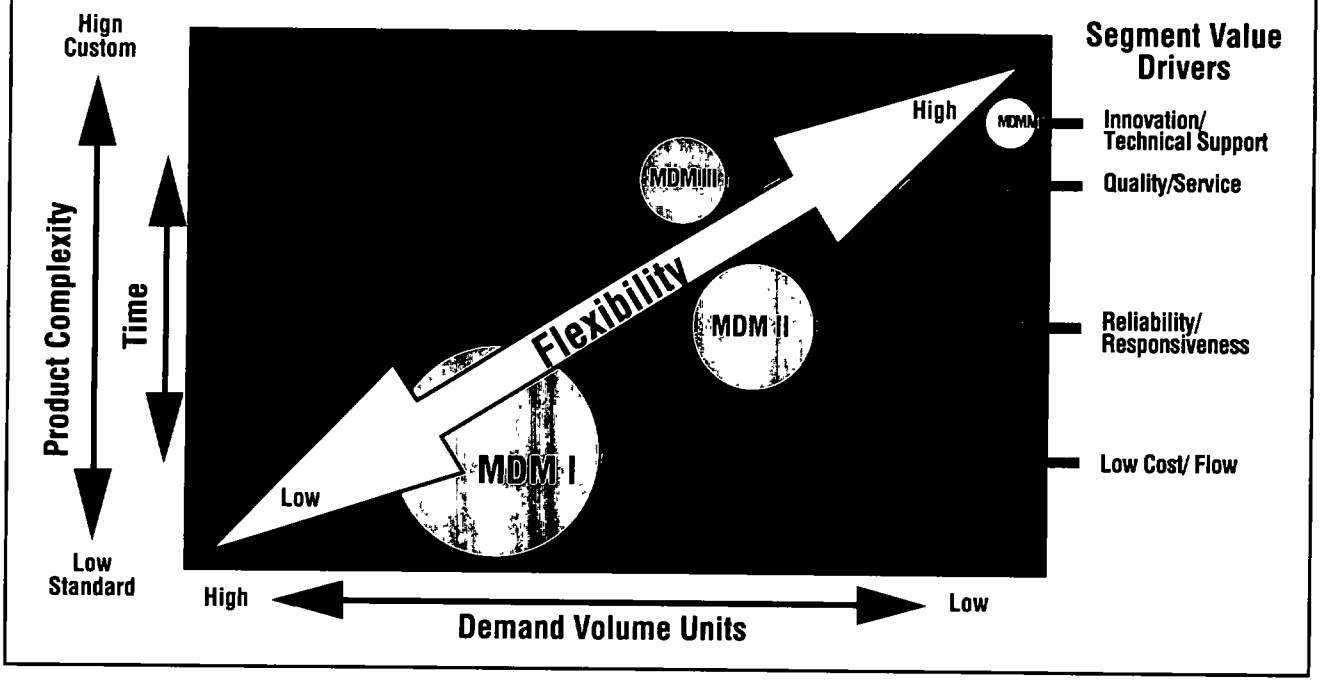
DEMAND MANAGEMENT

Companies that have recognized this problem are moving to a new strategy—demand management—which takes a holistic view of the business by market segment, the only strategically relevant level of aggregation. In the demand management process, representatives from all key departments first define the company's strategic imperatives—optimally up to three key goals that the company must accomplish to create value for the customer. The company then measures and defines the business benefits of reaching these goals and determines the manufacturing strategy needed to reach them, broken down by market segment.

The manufacturing strategy is defined in terms of specific manufacturing modules (see Figure 1), which consist of five key factors: (1) level of product complexity; (2) time dependencies; (3) scale factors; (4) change-over flexibility; and (5) level of through-put. For each manufacturing module, the company defines the organization, infrastructure, and cost systems it will need. A critical step is to define the metrics that depict the value proposition established with the market.

To implement the strategies, management holds a monthly "demand management" meeting to monitor progress and to make decisions based upon evaluation of the metrics. The president or profit center manager typically runs this meeting, which includes managers from marketing and sales, manufacturing, distribution, and customer service. "Demand management" replaces

Figure 1. Operations Strategy Modules—MDMM's (Market Driven Manufacturing Modules)



the traditional SOP process with more effective management decision support tools. These tools are enabled by an ERP "add-on" software product for use by senior management in operational decision making. The software breaks out ERP data by market segment and provides the metrics needed to monitor progress against strategic objectives.

Demand management is unusually effective because it moves decisions directly from senior management down to the shop floor and links with key suppliers. (See Figure 2.)

GETTING THERE

The biggest challenge to implementing demand management is often the very structure of the business itself. Most companies have grown by developing separate departments: finance, sales and marketing, manufacturing, distribution, and customer service. The people running these departments are highly professional and capable, but are used to running their operations as autonomous business units. They often gather information about their operations independently of the other business units. This "silo mentality" is a major barrier to effective demand management.

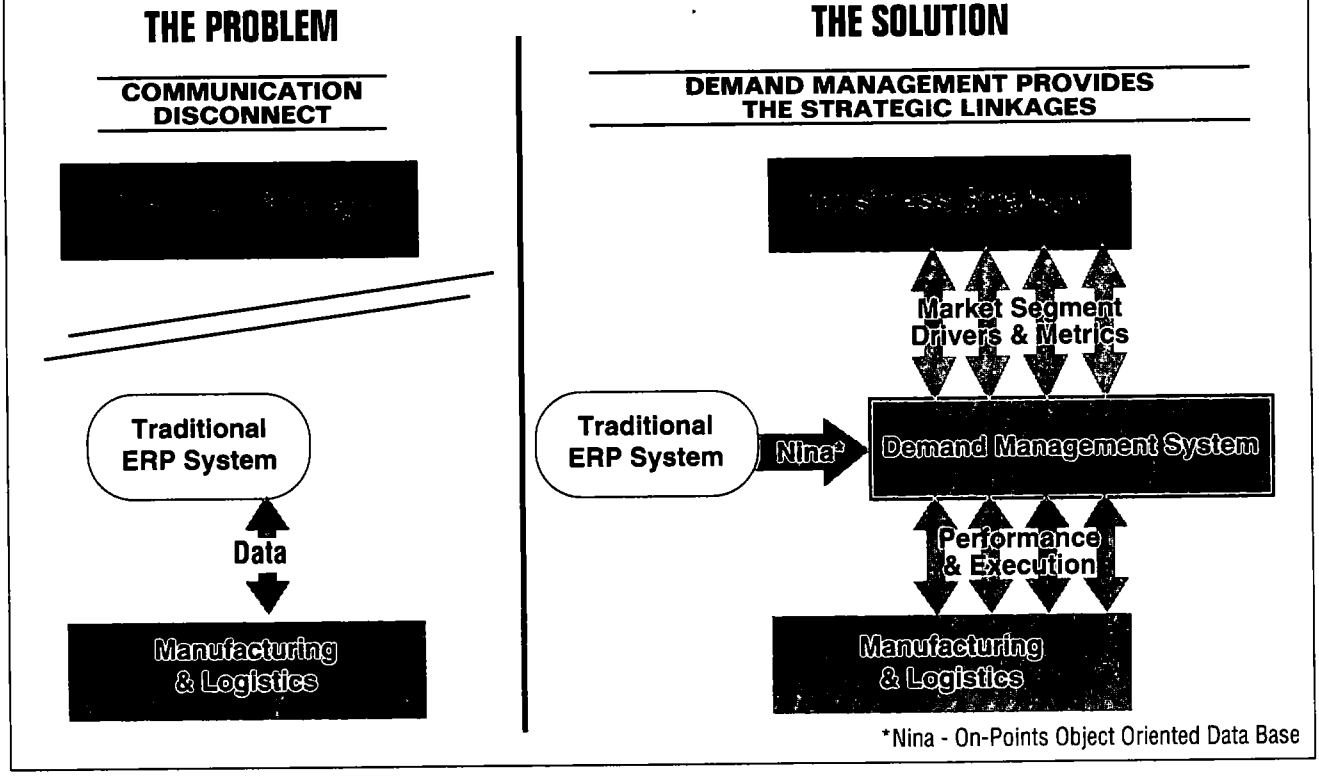
Second, company management is often guilty of having "nonarticulated" business strategies. These strategies, developed in isolation from the rest of the business, are not often specific and not tied to actual information from the rest of the business. As a result, different departments have only the vaguest idea of the goals they are supposed to reach. Instead, they substitute their own internally developed goals that are often at odds with the company's business plan.

In addition, cost-accounting systems in place at many companies are often quite good at measuring key business indicators. Unfortunately, these systems often measure and reward the wrong goals.

WHO'S ON FIRST?

For example, if you ask different people what represents good service, inventory, and total

Figure 2. Demand Management Connection



costs, you'll get entirely different answers based on their function. If you ask the customer service manager, he will likely say, "More inventory is good, and I don't really care what costs are." If you talk to the manufacturing manager, she might say, "Inventory can be high because I want costs to be very low. I want long production runs." The financial manager might say, "All we need is positive cash flow. I want inventory taken down to the lowest possible level. I don't care about service, and if we have a little bit higher manufacturing cost, fine—we'll make it up in the margins." In other words, if a company is allowed to operate as a series of separate silos, departments will optimize only the business objectives that matter most to them.

PAINTED INTO A CORNER

One of the barriers to demand management is established procedure. Most managers feel they can do a good job managing supply and demand based on the information they already have. Changing that attitude can be crucial. For example, at Sherwin-Williams, the management team was convinced that demand management could benefit the company, but it was concerned about getting line managers on board.

As a result, management, with the help of a consulting firm, set up an all-day business simulation game for the line managers. It had the marketing team prepare a hypothetical business forecast for paint products. The master scheduler then scheduled the plant. A production supervisor ran the production department and a purchasing manager ran the purchasing of raw materials. Likewise, the distribution manager ran distribution, inventory management, and two warehouses.

The game kept the process simple, with two customers (Kmart and a Sherwin-Williams company store), two warehouses, and two products—a five-gallon pail and one-gallon cans in two different brands. The managers felt this was simplistic, because the company had 37 brands in pints, gallons, five-gallon, and 20-gallon containers for 400 different customers in nine warehouses, but they went along with the game.

To start the game, the master scheduler turned over a card with the actual sales for the day. Production then planned production for that day, purchasing decided what to buy for the day, and so on down the line.

Demand management calls for specific definitions of inventory, capacity, and sales.

Problems surfaced immediately. Kmart sales were up by 10 percent for the day, but the production manager had no idea that 80 percent of his production line was devoted to Kmart already, and that he actually had to add a second shift. The problems cascaded from there.

After the game was over, the participants said, "We are really screwed up. The six of us sitting right here, talking to each other, couldn't get the right raw materials to the right production line. The inventory was sky high, we weren't shipping anything, and we bankrupted the company."

They said they needed a way to talk about the data in a common format. So the next day they played the game using demand management, starting with a demand management meeting. Kmart sales were up 10 percent, but managers determined that the increase was in a segment that produces the one-gallon production line—that increase was allocated to the capacity on line one. In addition, managers looked at the inventory for Kmart's brand in the warehouse and made a decision about how to adjust production and inventory to come up with a net production and capacity plan.

At the end of the day, the team said, "If we get that tool, we could run this business with 20 inventory turns, not the six turns we have today." The value to the company of 20 inventory turns vs. six was about $40 million, and after Sherwin-Williams installed demand management it achieved that figure.

Implementing demand management, then, can pay substantial dividends for the companies

that use it. Let's examine several examples of how demand management works in the real world.

KEEPING AN EYE ON THE MARKET

Several years ago, Bausch & Lomb's Eyewear Division developed a new marketing strategy. Its Ray-Ban Wayfarer model was selling millions of units a year and was very profitable, but the division wanted to reduce its dependence on this model. Bausch & Lomb needed the capability to develop and market brands based on new styles, so the company began working with fashion companies such as Donna Karan to develop sunglasses to go with various outfits.

While changes were taking place on the marketing side, the company was making no changes to the manufacturing side. Problems developed immediately. The company called a two-day demand/supply meeting, but accomplished nothing. Customer service levels were extremely low, inventories were skyrocketing, and the company was missing new product introduction dates.

These problems developed despite Bausch & Lomb having an extensive manufacturing resource planning (ERP) system. A consulting firm discovered that the manufacturing team had developed a strategy independent of the marketing operation. Also, in the SOP meeting, the sales and marketing team would discuss information about specific customers but without providing any context to it. There was no way to relate that data to the operations side of the business.

Likewise, manufacturing talked about tooling for new designs, its shipments, on-time performance, inventory increases, and so on, but none of this information was related to the marketing changes. Basically, the company did not have strategic objectives because it hadn't defined them in common terms.

Implementation of demand management focused first on critical strategic objectives. The division prioritized a list of the 10 new designs it wanted, with introduction times spelled out. Based on this information, management determined that manufacturing had to produce the product within three months. But when management measured manufacturing, it found manufacturing was set up to do a nine- to 12-month introduction period.

"Silo mentality" is a major barrier to effective demand management.

As a result, Bausch & Lomb redeveloped its strategic objectives in the form of a metric: how to make the changes needed to roll out the 10 designs using 90-day introductory periods. That required major changes in manufacturing. For example, instead of looking at the company's Rochester plant as a unit capable of producing 4 million sunglasses a year, management looked at it as a collection of 10 different capacity centers. Instead of running each product across every piece of equipment, management mapped the markets and styles and assigned product styles to specific capacity centers.

Also, the demand/supply meeting became a true information interchange, with sales and marketing talking about specific business segments and strategic objectives, and the manufacturing team discussing its response.

OLD HABITS DIE HARD

Summit Technology was a leader in the development of lasers for eye correction surgery, but the company was firmly fixed in a "silo mentality," where different operating units did not talk with each other. Demand management consultants spent a long time developing three broad business objectives for the company with input from sales, marketing, manufacturing, finance, and the chief executive. The most important objective was that, in the year 2000, the company needed to maximize market share by shipping at least 30 $500,000 laser units a month before other companies could launch competing technology.

The next week, the factory was shut down to retool to add a new feature that was interesting but not vital to the process. The shutdown lasted six weeks. The problem was that manufacturing

Demand management requires a new way of looking at supply and demand metrics.

still looked at Summit as an R&D company. For five years it had competed by continually adding new features. That strategy worked well when the company was shipping four or five units a year, but would not work well when it was trying to ship 30 units per month. The company had changed its strategic imperative, but had failed to articulate it.

Fortunately, Summit was able to identify the problems so that it was finally able not only to hit its shipment goal of 30 a month, but develop plans to increase that rate to 45 a month. In particular, it identified a crucial strategic impediment: One of its major suppliers was a small operation that could not ship enough units of a critical electronic component to meet the new production goal. The company tried phasing the supply of this unit to an international electronics company that not only had the capacity to produce it in volume, but the expertise to cut the cost of that unit in half. Later, Nestle purchased Summit for $987 million—not a bad price for a company that had a market cap in the beginning of 2000 of $100 million.

WHAT EXACTLY IS "CAPACITY?"

What exactly defines capacity is a key factor in demand management. Anchor Foods began exploring strategic imperatives by understanding the different business segments and determining which products were mapped to which manufacturing capacity. This led to some interesting discoveries.

For example, management asked the master scheduler the capacity of line 1. He said, "We can produce 2,400 pounds an hour, 24 hours a day, so our capacity is 57,000 pounds a day." Almost everyone had the same answer except one manager, who pointed out that the line had two 15-minute breaks every shift, that the start-up of each shift took another 15 minutes, that there was a two-hour maintenance shutdown each day, and that every third day the line shut down for an entire shift for a sanitation procedure. On average, the plant really produced 19 hours a day, or 45,000 pounds, while the scheduling department based its work on 57,000 pounds. With nine lines in the plant, there was a 20 to 25 percent shortfall between planned and actual production.

In addition, it turned out that different products ran at different rates on line one. While one product might run at 2,400 pounds an hour, another ran at 1,800 pounds an hour, and another at 1,000 pounds an hour.

Using demand management, Anchor began to forecast sales and schedule production by product family. There were three families of products produced on line one—one at 1,000 pounds an hour, one at 1,800 pounds an hour, and one at 2,400 pounds an hour. Demand management calls for specific definitions of inventory, capacity, and sales. It also factors in promotions for a specific market segment and its supported production areas.

This allows Anchor to make more informed decisions. For example, if the company expects a 10 percent sales increase to a distributor that handles three different Anchor product families, the production manager can immediately determine that a capacity constraint on line 1 would require him to subcontract the new business. In other words, people can immediately communicate cause-and-effect relationships.

THE MISPLACED PROBLEM

The demand management process often reveals that the source of a major problem is not what the company thought it was. For example, KI, a manufacturing firm, was absolutely convinced it had a major problem with customer service. The company was using a cost-accounting system by which individual managers set the goals. Predictably, managers were hitting their targets, but these targets didn't really relate to the business as a whole.

KI had two different business segments, one of which represented just 5 percent of production. However, that business segment experi-

enced a 50 percent growth rate in 1999, but there had been no response by manufacturing, because it wasn't getting the information it needed. It wasn't until KI developed a massive customer service problem that it finally realized that it didn't have enough capacity every day in the plant. What started out as a customer service problem was really a manufacturing problem that traced back to a lack of demand management at the top of the company.

Demand management is a market-driven process that requires a new way of looking at supply and demand metrics. The key element is that, instead of working in isolation, different departments within the same company must share the same numbers and the same goals. Getting to that point is not an easy task, but the rewards—in terms of lower costs, tighter inventories, and better customer service—are clearly worth the effort.●

Demand management moves decisions directly down to the shop floor.