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SUPPLY CHAIN

BTO is a necessary strategy for effectively serving today's market-of-one

Heighted focus on enhanced quality, the all-important bottom line, and—perhaps most importantly—serving the market-of-one is motivating numerous leading-edge firms in several industries to implement build-to-order (BTO) strategies. There are many benchmark examples of this, perhaps the most ubiquitous being Dell's approach. Yet, companies in industries such as consumer electronics, furniture, and farm equipment also are jumping on the BTO bandwagon, and thus generating rapid product delivery, eliminating excess inventory, increasing market share, and achieving high return on investment.

Dell is not the only company in the computer industry gaining competitive advantage through BTO implementation: Apple Computer also is attempting to take advantage of its competency in product innovation by shifting to BTO customization strategies through online distribution and its Apple stores. Likewise, Hewlett-Packard has shifted its operations plan from a vertical model to a more collaborative product development scheme that combines the technical skills of its workforce with those of its network of suppliers and vendors.

Our constantly evolving manufacturing system is a major contributor to the need for more responsive BTO strategies industry-wide. Over the years, what started out as countless craftsmen each serving a market-of-one soon grew into mass producers serving customer segments. Henry Ford's famous manufacturing response of "any color you want, so long as it's black" is a clear example. In turn, mass production evolved into faster Just-in-Time (JIT), satisfying these customer segments with "any color you

At-a-Glance

- The drive to serve today's market-of-one is motivating numerous leading-edge firms in several industries to implement build-to-order (BTO) strategies.
- BTO enables manufacturers to focus on methods that emphasize time as the vehicle for achieving and maintaining competitive advantage.
- To implement BTO, you must begin with a review of your company's entire supply chain—and then figure out how to focus on the customer and customer response every step of the way.

Illustration: Jack Gallagher

want, so long as it's among the finite list of available choices."

Today, the competitive marketplace is making another move: mass customization. The objective is to serve the market-of-one again—using low-cost mass production and without abandoning the speed and quality of JIT. For example, today's automotive industry is spending millions of dollars trying to figure out how it can respond to customer orders in two weeks or less and still be profitable. The industry is finding that BTO is as great a paradigm shift today as was JIT 30 years ago.

Competition

MANY HAVE ARGUED that the competitive capabilities a company brings to the marketplace are characterized by cost efficiency, quality, delivery, and flexibility. To benefit from their competitive capabilities, manufacturers have relied on various operations management techniques, such as total quality management, material requirements planning, JIT, lean, six sigma, supply chain management (SCM), and customer relationship management.

Today, however, manufacturers in strategic markets also must focus their capabilities on proximity-to-markets and time-based competition, strategies that emphasizes time as the vehicle for achieving and maintaining competitive advantage. These companies must determine how to efficiently respond to changing customer requirements in a timely manner. BTO enables them to access the mass customization information about the real-time, unique desires of customers—an invaluable method to gain and sustain their competitive advantage.

A much-needed revival

MANUFACTURERS SHOULD BE wary of being too satisfied with their lean and six sigma efforts. In the majority of cases, neither of these approaches actually will lead to any improvements to the bottom line, and often can do the reverse. Those in automotive companies, especially, have invested a lot, both financially and emotionally, in being lean. Because it paid off for them in the past, their leadership is reluctant to change its perspective and consider BTO. But the problem isn't with thinking lean, it's with thinking lean is enough.

The bold Nissan Revival Plan is a revealing example of a company seeing beyond current practices. The management at Nissan Motor Co. sought to reduce costs by 1 trillion yen (about \$9 billion) and reduce net debt from 1.4 trillion yen (about \$12.8 billion) to less than 700 billion yen (about \$6.5 billion)—and accomplish this goal in just three years. It



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began by attacking costs in three key areas: global purchasing cost (reduced by 20 percent); manufacturing with right sizing and increased plan utilization (enhanced 53–82 percent); and selling, general, and administrative costs (reduced by 20 percent). And because the company's financial woes largely stemmed from customers who were not getting what they wanted when they wanted it, Nissan committed to a 14-day, order-to-ship capability (beginning in Japan). Even as the company was close to bankruptcy, it was extremely productive. In fact, management declared the completion of its transition to BTO "revival" one full year ahead of schedule.

In an environment characterized by time-based responses to mass customization, examples like Nissan's resurgence suggest that competitive advantage will be held by those who focus on BTO approaches that can use

the core competencies of the entire supply chain. Even then, time compression is critical because business evolution happens quickly. If a company is truly world-class and leading edge operationally, it perhaps has a window of about 18 months before someone challenges for its position. If it is competitive only among companies that perform adequately, it probably has less than 12 months before somebody takes some of its market share. If this company is not even close to being at or near the top of its industry in operational excellence, then it is already in jeopardy and perhaps has six months to change.

The ability to respond quickly may determine chances of survival. To remain competitive, businesses must be willing to adjust the way they do things. When a competing firm can perform its engineering in the Philippines, order materials from China, have them assembled in Vietnam, and ship to customers 10–20 percent cheaper than you do, the only distinction left is how much faster you can respond with exactly what the customer wants at a price he is willing to pay.

BTO strategies

THE DIFFERENT BTO strategies can be characterized by their amount of engineering content or by the level of end customer involvement in specifications. These tactics are the opposite of make-to-stock (MTS), in that BTO takes a much more proactive approach to meeting changing customer demand patterns. Examples of BTO strategies include engineer-to-order (ETO), configure-to-order (CTO), find-to-order (FTO), and make-to-release (MTR)—the latter two represent BTO to a lesser extent.

(Continued on page 34)

At the top end of BTO strategies is the most customizable response, ETO. An ETO strategy is important to customers who have unique design requirements. However, delivery lead time is often an important tradeoff with this tactic because of the close involvement of the end customer in the product design and development process. Evidence suggests that ETO may be prevalent in the capital goods industry, where many job shops and small component manufacturers respond to the requirements of the original equipment manufacturer. Still, one questions the relative size of the end customer demand for ETO products.

A CTO strategy can take advantage of core competencies for a timely, cost effective response to the demand management challenges brought on by globalization. For example, consider a shirt manufacturer in Hong Kong that produces shirts for (among others) JCPenney. Not only does this manufacturer make shirts cheaply, it manages JCPenney's shirt inventory and guarantees that the store will never stock out of shirts, offering to ship a single shirt by air from Hong Kong—at its expense—to any store in the JCPenney chain to prevent a stock out. It is a huge undertaking. And the trick is this: The manufacturer does it without the usual volume of buffer inventory; rather, it uses CTO, with some forecasting due to seasonality. If the Hong Kong company can do it with tens of thousands of stockkeeping units, 12,000 miles separating it from its main customers' market, and to multiple shipping points within that market, then other industries can implement CTO, too.

Early BTO efforts in the automotive industry were called FTO, whereby a dealer's lots of total inventory were searched to find exactly what the customer wanted. Despite its continued use, FTO is not considered a true BTO strategy because it doesn't address the cost and speed demanded by competitive markets.

MTR strategies are designed to use work in process (WIP) inventory that is released as orders are confirmed. MTR was a step, albeit a small one, in the direction toward true BTO, but it also does not adequately address the cost and speed issues. Today, companies need to go further up the BTO chain in order to gain a competitive edge.

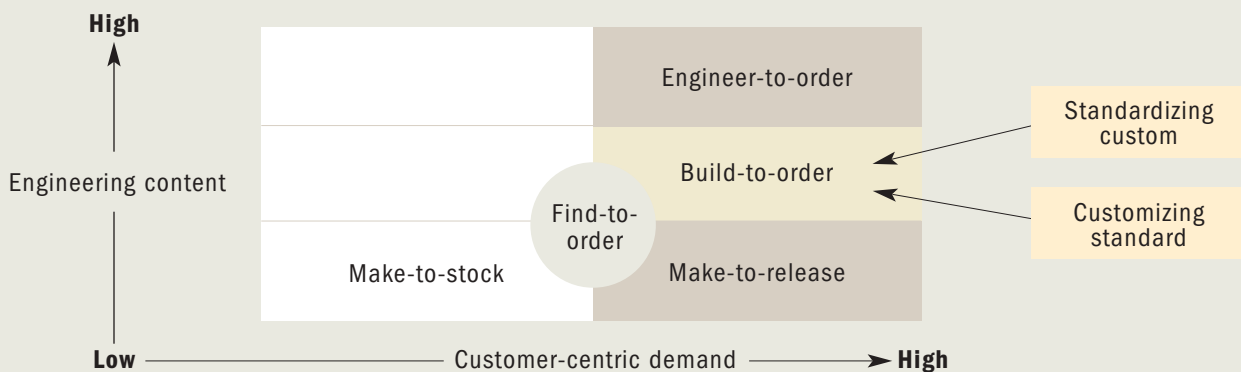
Managerial challenges

REALISTICALLY, EVOLVING TO a BTO strategy challenges existing business models regardless of whether they were previously ETO, CTO, or MTR—and especially if they were functioning in an MTS production environment. ETO has to refocus its core competencies to provide more standard products, while at the same time increasing quickness of response to customer requirements by becoming more agile. CTO also must eliminate the delays in responding to customer requirements—and can do so by making substantive strides in collaborating with suppliers and customers. MTR already has the mindset of product standardization coupled with rudimentary configuration capabilities. It needs to shift its reliance away from prebuilt inventory to enhanced customer experiences using collaborative WIP inventory. MTR also must concentrate on increasing flexibility in response to changing customer requirements and eliminating forecasting as a production planning driver. This is a goal for MTS, as well. Moreover, competitive manufacturers can't afford MTS with its "inventory is good" comfort zone. It results in the high costs associated with inventory as well as the misallocation of capacity.

As with any strategic focus, BTO success requires commitment by everyone in the organization. Commitments must be led by senior management, certainly, but must also be personally embraced by everyone else as the means to grow and sustain the business. After creating a compelling business case comes the hard part: making it happen. The foundation for

Figure 1: Manufacturing Evolution 1970–Present

Built-to-order flavors: evolving to BTO



BTO can't be built haphazardly. In order to realize the improvements in speed, cost, and quality in today's nanosecond time frame, businesses need a straightforward roadmap.

Implementing BTO

BTO STRATEGIES START with a focus on the customer, with meaningful customer response following close behind. By reviewing the entire supply chain—including design, demand forecasting, production planning, sourcing, manufacturing, distribution, and after-sales service—this is a reachable goal. Next, in order to successfully execute BTO, companies should adopt a job-shop mindset. Identifying “What did the customer order today?” and “When does he want it?” faster, cheaper, and better than your competitors determines your company's viability. These questions also help you bypass all the hoopla surrounding standardized production, takt times, and production smoothing.

In some industries, the range of choices or the number of possible combinations can result in a huge number of configurations. Therefore, another key implementation strategy is to limit the number of possible combinations or options by using a configurator. Dell uses its Web site and premier pages as the configurators that allow different customer segments to select computer options. In addition, manufacturers use proactive demand management strategies, such as real-time pricing and promotions, to influence the choices customers make. For example, Dell will proactively change the pricing of different components in response to real-time demand.

Once the customer requirements have been determined, the next step is for the manufacturer to instantly share these requirements with its supply chain. In this effort, the effective use of information technology (IT) and virtual supply chain integration strategies provides a large measure of competitive advantage. The more integrated the IT systems and SCM strategies, the more effective the manufacturer will be in sharing this information on the real-time demand for components, modules, and other supplies and services.

The third element of BTO implementation is the back-end process that manufacturers use to meet customers



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requirements. Dell takes the CTO requirements from the front-end and delivers these products and services using assemble-to-order (ATO) strategies that are supported by JIT-synchronized logistics from its supply chain. On the other hand, because many automotive production systems are designed for cost-efficiency rather than flexibility, automotive manufacturers rely on distributors to meet customer requirements. Therefore, in the automotive industry, managers may use FTO strategies on the back end in order to respond to customers' demands in a cost-effective manner.

If the manufacturer is unable to use ATO or FTO production strategies, then they may resort to traditional MTR and MTS strategies that rely on inventory.

Specifically, managers should follow these steps when implementing BTO strategies:

- Develop a collaborative, sequenced relationship with suppliers and customers;
- Shift the entire supply chain's focus to customers by responding to what they want (their orders) rather than what you think they want (a forecast);
- Synchronize processes throughout the supply chain to minimize delays, excess inventory, and redundant costs;
- Use balanced metrics so everyone can see how their efforts help the company reach a common goal;
- Use the supply chain cash-to-cash cycle measurements to gauge effectiveness in competing on a global stage.

Are you strategically and tactically prepared to compete in the 21st century? Or will the BTO paradigm shift of “job-shop meets Wal-Mart” leave you with obsolete inventory, shrinking market share, and decreased competitiveness? We're on the road to demand-driven business. Don't let the bandwagon pass you by. ♦

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