

Chapter 6

Getting the Product to the Customers

Where does S&OP work? With which kinds of products? With which kinds of customers? Does it help with the new product development and design process?

Our best practice companies sell to a wide array of customers, specifically:

- Mass merchandisers
- Retailers
- Distributors
- Wholesalers
- Government agencies
- Equipment manufacturers
- Consumer goods manufacturers
- Food and beverage producers
- Textile producers
- Hospitals
- Laboratories

Their products range from cookies to 20-ton castings. Processes span cookie dough mixing and baking, liquids blending and filling, and chemical reactions, to metal casting, machining, fabrication and assembly.

Order fulfillment strategies - what is done when a customer order arrives - vary for our best practice companies. Some manufacture their product in anticipation of getting orders, and then ship from finished goods inventory. Others produce it partially, hold the finished components or semi-finished materials until they receive the customer order, and then finish the product and ship it. Others don't even start producing until after they have the customer order firmly in hand. And a few companies custom design certain aspects of some products for each customer

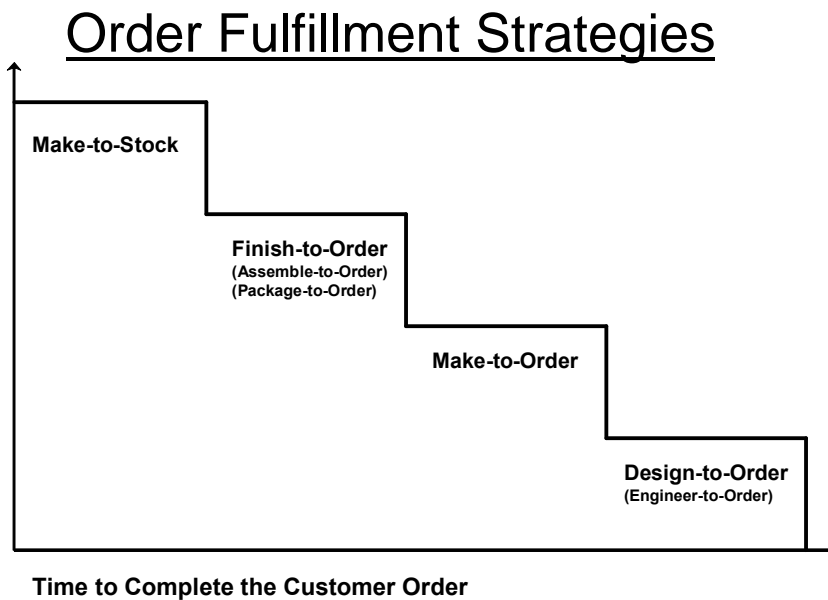
In the first part of this chapter we'll cover how S&OP works in different customer, product and order fulfillment environments, and how it works specifically at our best practice companies. Later in the chapter we'll discuss how S&OP supports a key process that is common to all companies and probably key to the success of your company as well: new product design and development. .

Meeting the Customer.

A company's order fulfillment strategy need not be industry or even product specific. It can be a *conscious choice* to achieve competitive advantage, or it may be guided by the intersection of customer lead times and supply chain lead times and flexibility. Virtually all of our model companies employ more than one strategy. Sometimes the strategy varies by product line, sometimes by product within a product line. And strategies can be changed over time - as lead times, customer expectations, market conditions, or a competitor's actions change.

Figure 6-1 - **Order Fulfillment Strategies** - lays out the primary options: make-to-stock, finish-to-order, make-to-order, and design-to-order. "Value Added" indicates how much labor and material is invested in the product prior to the receipt of the customer order. "Time to Complete the Customer Order" indicates how much time is required after the receipt of the customer order to complete manufacturing and get the product ready to ship.

Figure 6-1



What's S&OP Got to Do With It?

Before discussing each of the different order fulfillment environments, it is important to point out one very important fact - **the basics of S&OP don't change when the order fulfillment strategy does.**

The basic approach, objectives, structure, meetings and participants in the S&OP process remain the same regardless of the order fulfillment strategy. The same communication, problem-solving, identification of opportunities and decision-making remain at the heart of the process.

What does vary is the information that is tracked and displayed. For example, for make-to-stock families, "sales" data represents anticipated or actual shipments and the S&OP display shows it and the actual and projected finished goods inventories. For families using the other strategies, where there is no finished goods inventory, "sales" data represents the rate of incoming orders - "bookings" - and for them, the S&OP display shows the projected incoming orders and the current and projected backlog¹ of customer orders.

In some finish-to-order situations, the available and projected inventory of key components or semi-finished product is displayed for planning purposes. The S&OP display for a family with different fulfillment strategies may show inventory and backlog, as well as bookings, shipments and production.

Whatever data is displayed, an effective S&OP process always does one thing very well: it provides long range visibility on projected business performance, highlighting potential issues that may be hidden in the details of individual product forecasts, master schedules, and inventory by item. It pulls management's vision back from all the detail to get a sense for what's really happening in the business - seeing the scope of the forest, instead of just staring at individual leaves.

It highlights:

- Incoming customer order rates versus revenue and profit targets and plans
- The impact of seasonal, cyclical or temporary changes in demand patterns, on revenue and supply plans
- Current customer order backlogs versus desired backlog levels, and customer lead times versus required competitive lead times
- The scheduled shipping dates of the current customer order backlog versus their order booking dates (which could affect revenue and capacity plans)
- Incoming customer order rates versus supply (production) plans and capacity limitations

¹ Backlog is the total quantity of a product that has been ordered by customers, but has not yet been shipped at a specific point in time

- How fast production needs to ramp up or down. How the required volume shifts affect critical lead times, or management guidelines (time fences) used to manage the impact of change on internal and external resources.
- The potential impact of supply disruptions on overall sales, inventory and revenue plans.
 - For example, how a planned shutdown will impact inventory levels
 - Or is there capacity to produce more in advance of the scheduled shutdown?
 - And the financial impact of holding more inventory?
- Current and projected inventory levels versus desired targets (of finished, or in some cases, semi-finished product)
- The impact of new product launch dates on revenue, sales, supply and inventory plans

Let's now look at the different order fulfillment strategies one at a time and see how some of our best practice companies use them.

Make-to-Stock

What do you do when a customer order arrives? If you say, "we pick it, pack it, and ship it," you're following a make-to-stock (MTS) strategy. Products are manufactured to a forecast of some kind, put into finished goods inventory, and await customer orders. All of our best practice companies except *Cast-Fab* employ a make-to-stock strategy on some or all of their products.

Make-to-Stock and S&OP:

An example of a simple MTS sales and operations planning display is shown in Figure 6-2. It shows the basic data needed for S&OP in a make-to-stock environment: sales (shipments), supply plans, and finished goods inventory. This example only shows a six month future horizon, so that the numbers will be large enough to be legible on this page. Typically, companies would display planning information at least twelve months into the future, and often as much as eighteen to twenty-four months.

Figure 6-2

Make-to-Stock S&OP Display

Family AXY
 Description Large Widgets Crit Time Fence 4 weeks
 Unit of Measure EA Customer LT 2 days
 Turns Target 12

	History			Current		Current Year Expected Results	Next Year			
	AUG	SEP	OCT	NOV	DEC		JAN	FEB	MAR	APR
Sales										
Sales Plan	280	324	190	286	232	3200	335	353	453	318
Actual Sales	240	190	190							
Difference	-40	-134	0							
Cum Difference	-40	-174	-174							
Supply										
Production Plan	280	324	190	270	240	3100	290	400	460	300
Actual Production	300	210	140							
Difference	20	-114	-50							
Cum Difference	20	-94	-144							
Inventory										
Plan	320	320	320	334	342	342	297	344	351	333
Actual	380	400	350							
Difference	60	80	30							
Turns	10.0	9.8	11.5	12.1	12.2	12.2	12.3	12.3	12.4	11.2

Note: Turns for any given month = Sum of next 12 months sales (actual sales in the past, sales plan in the future) divided by month end inventory.

The projected **finished goods inventory** level represents a critique of the current balance between anticipated sales and planned production. The inventory acts like a shock absorber between demand and supply, absorbing minor variations from the demand plan, so that continual adjustments to the supply plan aren't necessary.

If the projected inventory is too high, perhaps the supply plan is now higher than need be. If the projected inventory is too low, then the supply plan may be too low, or the forecast may now be higher than the supply side of the business can support during that time period. The S&OP process will highlight these situations.

The size of the finished good inventory is also a key competitive variable, and as such should be managed through the S&OP process. It affects the level of customer service, but ties up capital. If the inventory is too low, customer service can suffer and the company is less competitive. If the inventory is too high, too much money may be tied up in working capital (inventory), excess inventory may prevent rapid response to new product opportunities, and cash flow and the company's financial results may suffer.

The inventory targets that are authorized by S&OP should represent a reasonable