

sales data, graphical displays of the future supply plans are often helpful as well. For more detail on graphical displays of S&OP data, see chapter 8.

### **Inventory/Backlog Plan**

The inventory or backlog section of the sales and operations planning report provides information to evaluate and manage the inventory and backlog for the product family. The inventory section shows past inventory performance as well as the planned stock build-up or depletion in the future. For each past period, the planned inventory can be compared to the actual inventory. For future periods, the planned inventory is calculated based on the supply plan and projected shipments, using the same formula explained earlier in this chapter. To refresh your memory of the formula used for a make-to-stock family<sup>1</sup>:

Ending inventory = starting inventory minus sales plus supply.

The backlog section shows past performance against the backlog plan, as well as the planned backlog in the future. For each past period, the planned backlog can be compared to the actual backlog. For future periods, the planned backlog is calculated from the bookings plan and projected shipments, just as in the earlier make-to-order formula:

Ending backlog = beginning backlog plus sales minus supply.

### **S&OP Time Phased Examples**

Figures 2-1, 2-2, and 2-3 below are examples of the time phased planning projections<sup>2</sup>. Figure 2-1 is an example of one way to display the data for a make-

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<sup>1</sup> As explained above, the correct formulas for mixed MTS/MTO families, or for families of products being finished to order are:

Ending inventory = starting inventory . the shipping plan + the supply plan

Ending backlog = starting backlog + the sales plan . the shipping plan

<sup>2</sup> Note that in most of the printed S&OP display examples in this book, the future horizon has been cut short – often to as few as four or five months. In a real working system, the future horizon would stretch out at least eighteen months into the future. Readers who are interested should refer to the reference software. It includes all the S&OP examples from the text of the book, with a full 18 month planning horizon.

to-stock family. Figure 2-2 is an example for a make-to-order family. Figure 2-3 is an example for a finish-to-order family.

In the next chapter, we'll discuss some of the additional considerations in designing effective S&OP displays.

Figure 2-1  
Basic Time Phased Data in Make-to-Stock S&OP Format

Family Description Unit of Measure	AXY Large Widgets EA x 100	Type: Crit Time Fence Customer LT	MTS 4 weeks 2 days						
			History	Current	Next Year				
CALENDAR	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
<b>SALES</b>									
Current Sales Plan	1960	2268	2000	2002	2110	2345	2471	3171	
Actual Sales	1680	1330	1950						
Difference	-280	-938	-50						
Cum Difference	988	50	0						
<b>SHIPMENTS</b>									
Customer Orders by Promised Date	1680	1330	1950						
Actual Shipments	1680	1330	1950						
<b>SUPPLY</b>									
Current Supply Plan	1960	2268	2000	1750	1750	2100	2800	3150	
Actual Supply	2100	1470	2100						
Difference	140	-798	100						
Cum Difference	560	-238	-138						
<b>INVENTORY</b>									
Current Inventory Plan	2240	2660	2800	2698	2338	2093	2422	2401	
Actual	2240	2660	2800						
Difference		420	140						

Also note that, generally speaking, the S&OP examples shown in the book are generated from one of three basic spreadsheets (one for make-to-stock, another for make-to-order, another for finish-to-order). In order to reduce the amount of information being introduced “all at once” or before the topic is introduced in the book itself, rows have been hidden prior to generating the figure in the book. You can see the complete spreadsheet, with no hidden data, by opening the reference software that is available with the book. See Chapter 10.

Figure 2-2  
Make-to-Order S&OP Format

Family Description Unit of Measure	BHK Large Pumps EACH X 100	Type Critical Time Fence Cust Lead Time	MTS 10 weeks 12 weeks	History			Current		Next Year		
				AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
<b>CALENDAR</b>											
<b>SALES</b>											
Current Sales Plan				1470	1890	1820	1820	1400	1400	1400	1540
Actual Sales				1400	1645	1750					
Difference				-70	-245	-70					
<b>SHIPMENTS</b>											
Customer Orders by Promised Date				1470	1890	1820	1820	1470	1540	280	0
Actual Shipments				1456	1890	1820					
<b>SUPPLY</b>											
Current Supply Plan				1470	1890	1820	1820	1470	1540	1540	1540
Actual Supply				1456	1890	1820					
Difference				-14	14	0					
<b>BACKLOG</b>											
Current Backlog Plan				5481	5425	5180	5110	5040	4900	4760	4760
Actual	5481			5425	5180	5110					
Difference				-56	-245	-70					

Figure 2-3  
Finish-to-Order (Postponement) S&OP Format

Family Description Unit of Measure	BHK Large Pumps EACH X 100	Type Critical Time Fence Cust Lead Time	FTO 10 weeks 12 weeks						
CALENDAR	History			Current		Next Year			
	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
<b>SALES</b>									
Current Sales Plan	1470	1890	1820	1820	1400	1400	1400	1540	
Actual Sales	1400	1645	1750						
Difference	-70	-245	-70						
<b>FINISHING AND SHIPMENTS (Finished Product)</b>									
Current Shipments Plan	1470	1890	1820	1820	1470	1400	1400	1540	
Customer Orders by Promised Date	1470	1890	1820	1820	0				
Actual Shipments	1470	1890	1820						
<b>SUPPLY (Semi-finished material)</b>									
Current Supply Plan	1470	1890	1820	1820	1470	1540	1540	1540	
Actual Supply	1456	1904	1820						
Difference	-14	14	0						
<b>SEMI-FINISHED INVENTORY</b>									
Current Inventory Plan	1750	1736	1750	1750	1750	1890	2030	2030	
Actual	1750	1736	1750	1750					
Difference	-14	14	0						
<b>BACKLOG</b>									
Current Backlog Plan	2205	2135	1890	1820	1750	1750	1750	1750	
Actual	2205	2135	1890	1820					
Difference	-70	-245	-70						