# S&OP: Answering Six Fundamental Questions in One Graph.

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Published: April 29th, 2019

**If you follow any of the work/writing that we do on S&OP, you will quickly realize that we believe data to be an important part of the S&OP process.** At the center of our philosophy on S&OP is the 5-Section Sheet. This sheet is a family view that connects demand with supply AND covers the buffers or levers that you must manage the business. These being inventory, backlog and flex capacity.

**The 5-Section sheet presents the story for the family.** By being able to view all of this information at together, you have an actionable plan. You can read more about the 5-Section Sheet in Duncan's article "Getting to the Story" or pick up his book: Sales and Operations Planning How to Run an S&OP Process Everyone Understands.

**Sometimes however data, or numbers, can make it difficult to see the story.** This doesn't mean the data is not important, however for some of us, it is hard to "feel" what is if the data is overwhelming. As a result, people push for graphical representations or dashboards for S&OP. But what is the right way to do this? Too often, graphs are over-simplified or over-complicated and the understanding of what you are presenting is lost.

**The graphical view still needs to answer the fundamental questions you should look for out of S&OP. These are:**

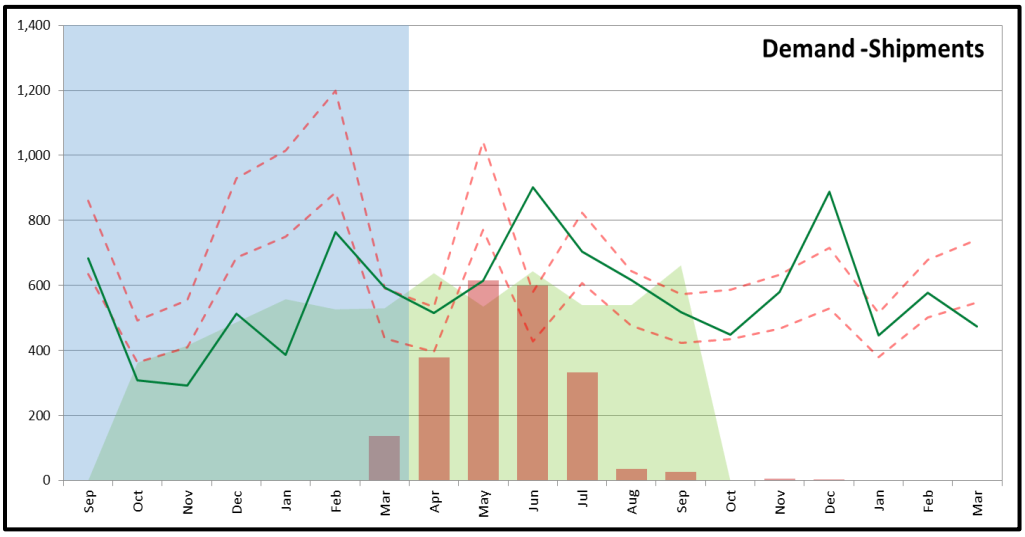
1. **What happened in the past? Did we do what we said we wanted to do?**
2. **What has changed in our plan going forward?**
3. **What are the risks in the plan?**
4. **Are we tracking to our objectives (budget, backlog targets)?**
5. **Do we have a viable plan (ie. are demand and supply balanced)?**
6. **Is our process in control?**

**To understand this, let's start with the 5-Section Sheet below.**

| | CYE | YTD | Jan (M-2) | Feb (M-1) | Mar (M0) | Apr (M1) | May (M2) | Jun (M3) | Jul (M4) | Aug (M5) | Sep (M6) | Oct (M7) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orders Plan - Bookings** | | | | | | | | | | | | |
| Mar 2019 S&OP Plan | 5,453 | 2,261 | 406 | 473 | 305 | 430 | 388 | 365 | 561 | 549 | 594 | 484 |
| **Apr 2019 Current Plan** | **6,273** | **2,756** | **401** | **553** | **495** | **277** | **648** | **542** | **437** | **736** | **877** | **484** |
| **Demand Plan (Shipment Plan)** | | | | | | | | | | | | |
| Demand (Shipping) Budget | 6,439 | 2,880 | 558 | 527 | 530 | 638 | 535 | 644 | 540 | 540 | 662 | |
| Mar 2019 S&OP Plan | 6,428 | 2,265 | 883 | 1,043 | 514 | 465 | 906 | 504 | 716 | 560 | 498 | 511 |
| **Apr 2019 Current Plan** | **6,733** | **2,858** | **387** | **765** | **593** | **516** | **615** | **903** | **705** | **618** | **518** | **448** |
| Apr 2019 Backlog Spread | | | | | 138 | 378 | 615 | 600 | 333 | 37 | 26 | 0 |
| **Backlog Plan - Calculated** | | | | | | | | | | | | |
| Target Backlog Spread | | | | | | | | | | | | |
| Mar 2019 S&OP Plan | | | | | 2,143 | 2,108 | 1,590 | 1,451 | 1,296 | 1,285 | 1,381 | 1,354 |
| **Apr 2019 Current Plan** | | | **2,419** | **2,352** | **2,142** | **1,903** | **1,936** | **1,575** | **1,307** | **1,425** | **1,784** | **1,820** |
| **Total Production (Supply) Plan** | | | | | | | | | | | | |
| Receiving Days | | | 22 | 20 | 20 | 24 | 20 | 19 | 24 | 20 | 24 | 0 |
| Capability | 0 | 0 | | | | | | | | | | |
| Mar 2019 S&OP Plan | 6,529 | 2,421 | 874 | 775 | 1,120 | 486 | 384 | 470 | 527 | 555 | 566 | 419 |
| **Apr 2019 Current Plan** | **6,878** | **3,049** | **398** | **849** | **628** | **561** | **660** | **644** | **646** | **618** | **700** | **500** |
| Supply Per Day | | | **18** | **42** | 31 | 23 | 33 | 34 | 27 | 31 | 29 | 0 |
| **Inventory Plan - Calculated** | | | | | | | | | | | | |
| Target | | | | | | | | | | | | |
| Mar 2019 S&OP Plan | | | | | 687 | 708 | 186 | 152 | -37 | -42 | 26 | -66 |
| **Apr 2019 Current Plan** | | | **25** | **81** | **69** | **114** | **159** | **-100** | **-159** | **-159** | **23** | **75** |

I'm not going to go into the details the data presented here **(check out the links above if you are interested in digging into this)**, but by understanding the data in this presentation you can answer these six questions. I've worked with many executives over the years, and once they know how to read this, they are able to quickly get a handle on what is happening in the business.

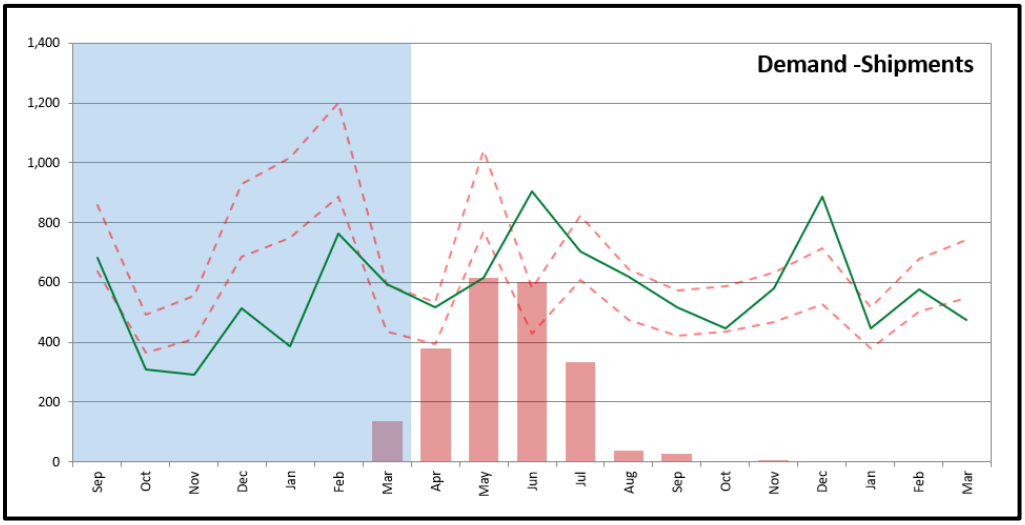
**Now consider one section of the 5-Section Sheet in a graphical view to see how it helps answer these five questions.** The section we will consider is the Shipment Plan. This is a good place to start because shipments usually represent the section of the plan that directly links to revenue. Often is the focus of the S&OP process. The graph is shown below, with the data pulled directly from the 5-Section Sheet.



**First, look at general format for the graph.**

- **It contains both historical and planned or "forecasted" information.** The S&OP month we are in is April. The months from September to March (shaded in grey) are the last six months of history. Months April through March going forward are forecasted. History allows me to validate what has happened.
- **The forecast is in units.** This is important because it allows me to balance the data to supply and inventory.
- **I'm not showing it here, but I use the same format for the other sections of the 5-Section Sheet (bookings, supply, backlog, and inventory).**

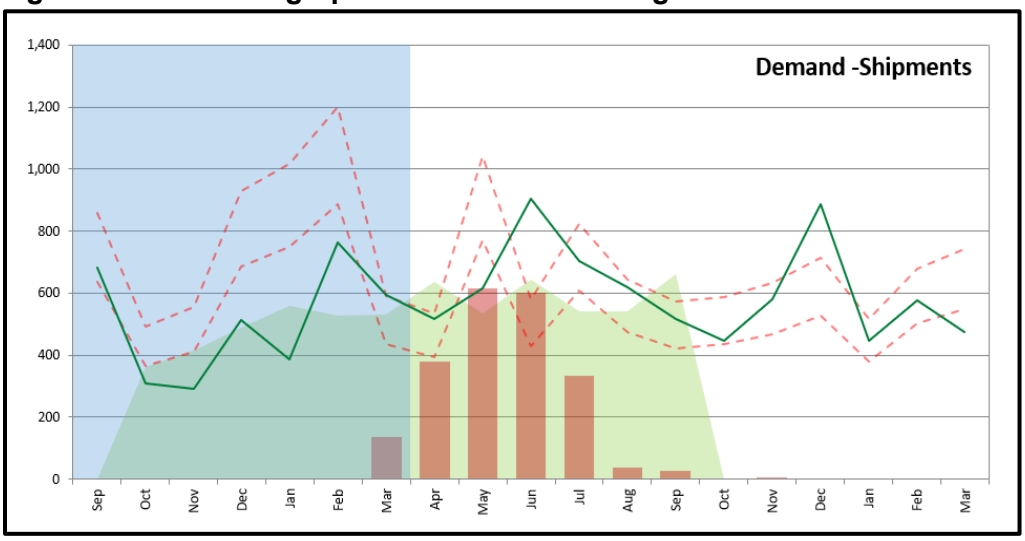
**Secondly look at some of the data elements.** To do this I've stripped out a portion of the data to make it easier to see.




- **The green solid line represents the actual historical shipments (grey area) and the current planned shipments for the April S&OP plan.** Once again, this answers how did we do, and what do we plan to do going forward.
- **The red dashed lines represent a fixed tolerance level (in this case plus or minus 15%) from the previous plan (S&OP plan for March).** By showing this data on the graph I can see:
    - **Am I in control?** Out of the past six months, only once (September) have I been able to call shipments within a +/- 15% tolerance. Four out of the six month's we have under forecasted our shipments. Working on removing a bias and improving the forecast accuracy should be an objective for this family.
    - **How much volatility have I put into the plan?** In last month's S&OP meeting we had a spike in May, which has now shifted out to June. We would need to look at the supply and inventory graphs to get a full picture of the impact of this; however there is a question as to what is driving this volatility two months out.
    - **How confident am I in the plan going forward, based on our plan accuracy in the past?** What level of risk do I assign to the plan based on this information?

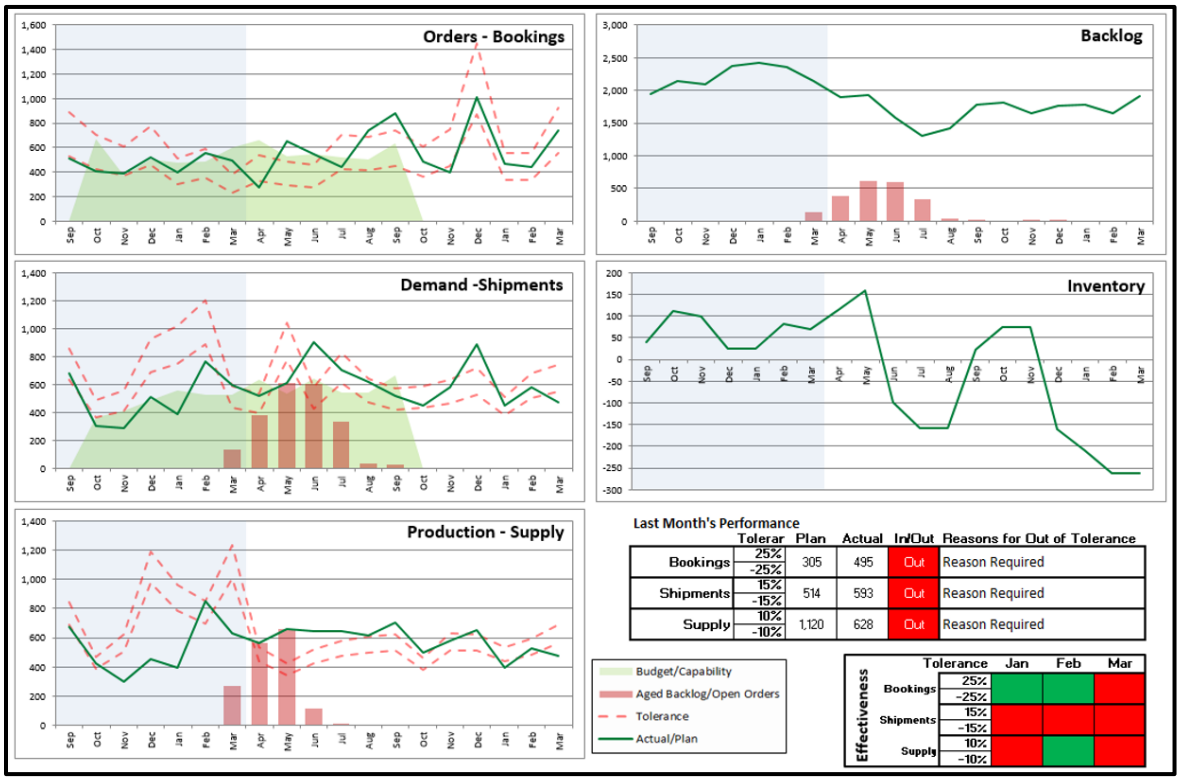
- **The pink bars represent the aged backlog by promise date.** Seeing the aged backlog against the shipping plan allows me to assess the risk in meeting the shipping plan or potentially impacting my lead-time market strategy. From the graph, I can see that there were some open orders that should've shipped in March that are past due. These plus the backlog for April equal the shipment plan for that month. By knowing the desired backlog profile and customer expected lead-time, I can gauge the risk on pushing out customer lead-times or being able to meet my shipment plan. A couple examples would be:
    - **If the customer expected lead-time for this product is 4 weeks, I am not calling for a high enough shipment plan.** My first two months are filled with open orders (the pink bars match the green line). I'm at risk of not meeting expected lead times.
    - **If this family has some book and ship demand, our shipping plan is too low.** There is no room in month one (once we factor in the past due orders) between the open orders and the shipping plan. This won't allow for drop-in orders.

**Now let's go back to the full graph and include the budget.**




- **The green shaded area represents the budget.** This is the dollarized budget converted to units for the family. Is our plan tracking to the budget set for the year. This allows us to see if we are tracking close to our desired targets for the family. We can also see that we don't have a budget established for the next fiscal year, which starts in October.

**To assess the viability of the plan you need all five sections of the 5-Section Sheet.** By graphing the other sections of the sheet, you can create a complete picture for the family on one slide. By using the same format across all 5-Sections you can get to the complete story.




**The math in the 5-Section sheet ensures that you have a balanced plan.** If the plan is unbalanced, the math will not work. Being able to view it graphically often helps the story come out clearer for all involved in your S&OP process. If you are going to simplify your message, make sure you can still answer the six fundamental questions, and you will be well on your way to having an effective S&OP process. If you have questions on how to do this don't hesitate to reach out.