Sales & Operations Planning (S&OP)

S&OP sticks when the benefits outweigh the effort

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Case Study Company

Our case study company is a parts and equipment manufacturer for the mining industry. They struggled to meet customer expected lead times due to high SKU count, lack of visibility into demand, and a challenging supply chain with long lead times. This resulted in both lost sales due to unacceptable lead times and high inventory levels to support sales… the worst of both worlds. Our client wanted to better understand their upcoming demand and balance that with their operational ability to supply that demand.

An S&OP process is challenging to implement and more challenging to maintain. The high level of effort and diligence within an organization to maintain a strong S&OP process is only possible when it produces clear consistent benefits.

Our client was successful in implementing and maintaining their S&OP process because they used each meeting to drive decisions. The focus on action in each meeting is what led to consistent benefits achieved across the organization. The greatest benefit for this company was increased sales. Having the right inventory available at the right time allowed them to close business they lost in the past.

What is Sales & Operations Planning?

Sales & Operation Planning (S&OP) is a process to align an organization across all functions, so that operational capacity is optimized, balancing demand (sales) and capacity. When done well, S&OP allows business to capture efficiencies in their operations and sales from the market because they can proactively adjust their business as forecasts change.

Sales & Operations Planning is focused on the current state through about a year into the future. These are tactical planning decisions but linked to the higher-level strategic plan. S&OP is the planning that happens between the operational scheduling and sales activity, and the high-level strategic planning of an organization. It drives the adjustments that need to be made in the short to medium term to support the strategic plan.

At a tactical level S&OP is typically made up of four key monthly meetings:

- Demand Planning & Forecasting Meeting
- Supply Chain & Ops Planning Meeting
- Balancing Meeting (Supply / Demand Meeting)
- Executive Meeting

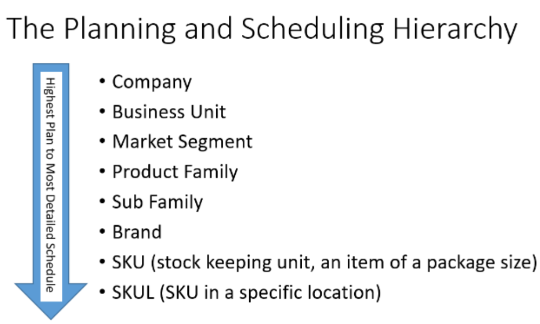
Setting up an S&OP process takes significant effort. Key decisions on how to structure S&OP relevant to the business are required: What are the product families? What is the correct unit of measure? How is capacity measured? What are the key time fences? How is forecasting completed?

These decisions should be made by a cross functional team. Our client leveraged a Kaizen event to tackle these questions in a focused blitz approach. The client team included members from supply chain, procurement, customer service, sales, plant operations, engineering and finance.

Once these decisions are made and the process is set up, significant rigor is required to maintain the process and extract the benefits.

Key Decisions:

- *Product Families* - groups of items that have similar design, manufacturing processes, or materials that they can be planned in aggregate.



It is important to note that S&OP is a planning process not a scheduling process. It does not work at the SKU level but is focused at the product family level. It is important to keep the number of product families to a manageable number. Each product family will require separate reporting and analysis during the monthly S&OP process.

Initially, our client team came up with several different ideas for grouping SKUs into effective product families for their organization. The sales team wanted the product families to focus on customer end use, the operations team recommended production methodology, and the procurement member suggested commodity. Ultimately, the group determined that customer end use was the appropriate product family for this organization.

- *Unit of Measure* – typically aligns with the marketplace perception of what is bought. The unit of measure is what is forecasted and planned. This can be pallets, pounds, feet, eaches, cases, hours, etcetera. This is unique to each business but must be determined prior to implementing the S&OP process.
- *Capacity Measurement* – often different than the unit of measure, this is how the organization measures its capacity to produce. The product family unit of measure is translated into these capacity units based on a multiplier averages across all sub-families of SKUs.

The team spent significant time determining the correct capacity measurement. One capacity measure we considered was labor hours, but this did not represent all the constraints that the organization was facing. Excess labor hours did not necessarily equate to excess capacity. The client struggled with capacity on a few, specific machines. If a machine was already fully booked, the organization could not produce more of certain products.

The client also faced constraints with their suppliers, especially suppliers of forged metals. If they didn't order with significant lead times (6-12 weeks) they would not be able to obtain additional materials quickly.

The group determined their capacity measurement varied by product family. The capacity measure we decided was appropriate included labor hours, vendor capacity, and specific machine hours.

- *Time Fences* - indicate different periods in the planning horizon. An organization has different options if they face excess demand across different time fences. For example, excess demand can be within the current frozen production schedule is a problem for execution versus excess demand beyond the longest supplier lead time which is a problem for planning. There are four key time fences for each product family:
    1) Frozen Production Schedule
    2) Order Processing Leadtime
    3) Longest Supplier Leadtime
    4) Time Required for tactical change in operations (adding or removing capacity)

- *Forecasting* - Demand is a key piece of S&OP and forecasting enables understanding your future demand. (Note that "understanding" does not mean a "perfect and accurate forecast." We recommend leveraging an algorithmic forecast combined with insight from the sales team to come up with a product family forecast.

Often sales representatives do not have great visibility into their customers forecast. Getting valuable feedback from sales can be extremely challenging. It is important to understand what information the sales team does have and figure out how you can incorporate this back into the algorithmic forecast. When there isn't great information available, a training process to enable the sales team to pull forecast information from their clients can be valuable.

Our client had a comprehensive quoting process which was a great indicator for upcoming orders. We developed a methodology to provide each sales representative with a summary of their customers open quotes. The sales team had to review the open quotes and provide feedback as to if they expected the business to convert, and if so during which month. This feedback was then integrated with the algorithmic forecast to create a forecast in which the business had more confidence.

<u>Monthly Sales & Operations Planning Process</u>
Once the key decisions above were made, our client was able to pilot two of their product families with the monthly Sales & Operations Planning process

The process follows a monthly cadence of four distinct meetings:

Sample: S&OP Meeting Cycle

Monday	Tuesday	Wednesday	Thursday	Friday
1	2	3	4	5 Prepare for Demand Meeting →
8 Prepare for Demand Meeting →	9	10 Demand Meeting	11	12 Run Unconstrained Supply query over the weekend
15 Prepare for Supply Meeting →	16	17 Supply Meeting	18 Prepare for Balancing Meeting →	19
22 S&OP Supply & Demand Balancing	23	24	25 S&OP Executive Meeting	26
29	30	31		

Legend	Demand Meeting	Supply Meeting	S&OP Balancing Meeting	S&OP Executive Meeting

Target Dates (4-week fiscal month)

1. **Demand Meeting – Week 2**
2. **Supply Meeting – Mid Week 3**
3. **S&OP Balancing Meeting – Late Week 3**
4. **S&OP Executive Report Out – Mid Week 4**

Demand Meeting

The demand meeting produces an unconstrained demand forecast leveraging the algorithmic forecast and input from the sales team. **The team will identify potential risks and opportunities**. Examples of risks and opportunities identified in a demand meeting are: Order 123 is delayed due to additional testing and certification required; the FDA could approve drug X as early as December 10 when approval occurs Customer Y will need Z volume.

Supply Meeting

The supply meeting takes the unconstrained demand forecast and creates a constrained demand plan by incorporating capacity and service level expectations. **The supply meeting team will identify potential risks and opportunities**: machine MMM will be down for maintenance, reschedule job 456. Vendor DEF will be late in its shipment, update production schedule for new date.

Balancing Meeting

The balancing meeting brings together the supply and demand team to discuss any gaps identified between the unconstrained and constrained demand forecast. **The team develops options, recommendations and goals to bring to the executive meeting for a decision.**

During our pilot month, our client identified a large order with a high likelihood of converting, but the conversion would have put the business beyond their supply capacity unless they acted immediately. The supply and demand team made the recommendation to start production so they could meet the customers lead time without hitting their capacity constraints expected in the next month. The executive team approved the early production, the order was received two weeks later and as a result of acting quickly they were able to meet customer demand at a faster-than-normal lead time.

Executive Meeting
The executive S&OP meeting is a discussion with leadership on the results of the balancing meeting. The team presents their recommended scenario and recommendations or decision for leadership. Leadership will make the decision on which scenario to move forward with and this will lock in the plan through the last time fence.

Benefits of S&OP
The typical benefits from S&OP are improved forecasting which can lead to reduced lead times, improved sales conversions, improved operational efficiencies, and others.

In addition to these benefits, our client benefited significantly from improved visibility and cohesiveness across the organization. Specifically:

- Visibility into potential lost sales and the opportunity to win them back
    - When a large forecast is calculated by a forecast algorithm, but the sales representative has not heard from that customer it becomes a trigger to connect. Our client's business is cyclical but over multiple years. It is hard for a sales representative to remember when a maintenance is coming due to a machine. Here the forecast can be a reminder, avoiding the customer going to market.
- Visibility into upcoming sales and the opportunity to influence the customer to purchase an alternative product
    - When sales is talking to operations and there is visibility into a sales before the order is entered, there is an opportunity to influence the order. For our client, an alternative but viable product may be aging in their warehouse. If the sales representative understands they can provide the customer significantly shorter lead time and reduce aging inventory — a win win!
- Improved timeliness and reaction to issues
    - A robust S&OP process requires multiple cross-functional meetings every month. This creates discussions on issues in the moment rather than after the fact. Prior to this process our client typically waited until the end of the month and then reviewed the health of their supply base, sales and inventory. With the S&OP cadence this changed to reviews, discussions, and actions taken in the moment not after the close of the month.

One of the big benefits of S&OP for any organization is cohesiveness across all functions of a business. This creates visibility, and visibility allows the organization to see opportunity. Once the opportunities are visible, they become achievable.