

Family Ties

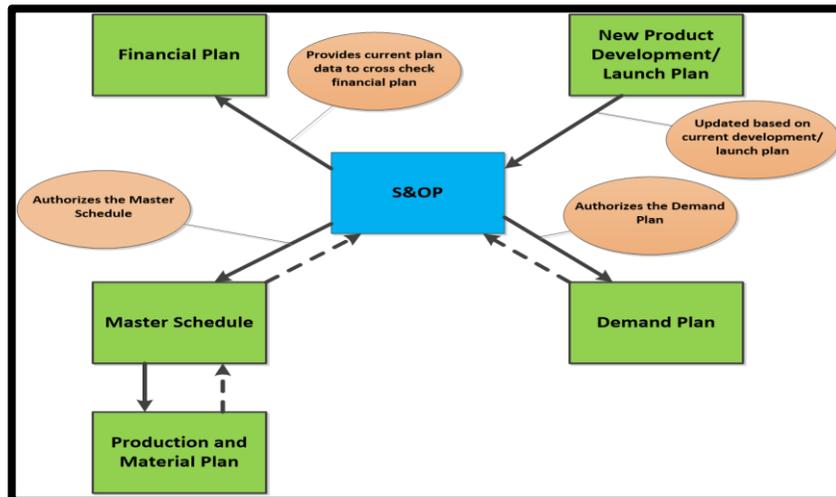
Making S&OP Work

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Should my S&OP families be setup as market-based or constraint-based? This is a question that I get asked quite often, and the answer always is: S&OP families should be constraint based but with the ability to segment demand by demand streams. If this goes against how you've always considered your S&OP families, I urge you to read on.

Let's start with a little S&OP background. S&OP is a process that provides management the ability to strategically direct its business to achieve competitive advantage on a continuous basis. The S&OP process is performed monthly at the family level and brings together all functional & strategic plans. The S&OP process reconciles supply, demand, and new product plans.



S&OP is at the heart of the planning process. The monthly S&OP process is at the inflection point between strategy and execution which means you are establishing and monitoring short term objectives while setting and tracking your longer-term objectives. At the same time, you are establishing a plan that crosses functional silos in an organization (sales, operations, finance, and engineering) that don't always speak a common language.

Getting the right view of your S&OP families is the most important structural starting point for S&OP. To get a complete view of the business you are balancing the different viewpoints or perspectives of the stakeholders. The sales or customer viewpoint may be by product use or type, while manufacturing may view the products by production line or facility. Accounting may look at products on a cost basis or by margin. Finding a common language isn't always easy.

The right S&OP families, at the right level of granularity, support efficiency of reporting, and should drive accountability in your organization for actions and results. You only

have one to two hours each month to cover the entire business with executives – so you need to make it count. If it is too detailed, you won't get them involved. Not detailed enough and you won't uncover issues. Remember, S&OP sets the operating parameters within which you execute; it is not the execution process itself.

I stated that you should setup your family by Constraints, but let's take a second to understand the difference between a Market and Constraint view. The table below gives some examples of how you might take an external view (Market), or internal view (Constraint). There are other examples that could be used but these will suffice to help you understand the difference.

Market View	Constraint View
<ul style="list-style-type: none"> • KOB (Kind of Business) • Sales Channel <ul style="list-style-type: none"> • Distributor • Direct to customer • Online • Go-to-market strategy <ul style="list-style-type: none"> • MTS, MTO, CTO, ETO • Geography <ul style="list-style-type: none"> • Country • Sales Region 	<ul style="list-style-type: none"> • Correlation to specific capability <ul style="list-style-type: none"> • Typically families reside within a plant • Typically families are mapped against critical capacity constraints to support rough cut capacity planning • Correlation to specific materials <ul style="list-style-type: none"> • Typically families share significant components

The “Market View” is important because demand is influenced by how you go to market. Some of your demand may be driven by events (projects) while the rest comes from smaller more predictable orders. You may run promotions via a specific channel that will drive demand events. You may have a different channel strategy in different geographies, that requires tracking of channel inventory. Your strategy may involve different lead times for standard versus make to order products. All these required segmentation by market. One of the first places to start is by segmenting abnormal (project) demand from normal (flow) demand. If you are interested in this, you can read more [here](#).

Ultimately you need to be able to segment your demand to address the following:

- **Improve Demand Planning** – using the correct demand planning technique by demand stream (opportunity management for projects, versus statistical forecasting for flow)
- **Drive specific go-to-market strategies and track results**
- **Accountability** – who is responsible for different demand streams (geographies, customers)

All of this work at the demand level only applies to part of the S&OP picture. We can do all kinds of great work to develop a really accurate demand plan but if we are unable to align our supply strategy and capability we will not be able to effectively meet demand. To do this we must look at our business by constraint.

If You Can't Build it You Can't Sell It!

If you are going to sell something you have to be able produce it or procure it (in the case of buyouts) when the customer wants it. This may be stating the obvious, but your ability to do this is determined by constraints. A constraint may be defined by a production line,

assembly cell or plant. The constraint also may be material based, machine throughput, or labour. In the case of buyouts, it may mean considering the capability of your specific supplier.

Changing your supply level, or capability, typically means changing your constraints.

Determining whether this is necessary requires aggregating the demand plan and viewing it in aggregate by the constraint. There are several options to change your supply capability. Typically, options that can be executed with a short lead-time are only sustainable over a short term, while options that are more sustainable require a longer lead-time to address.

- **Short term demand increases can often be covered by overtime, buffer capacity, or material buffers.** In most cases you will only be able to do so for a limited amount of time as this causes stress on your people, machines, or supply chain.
- **If there is more lead-time given on demand shifts, they can be met through hiring or finding secondary sources.** These actions may require at least 3 to 6 months to fully execute, once you factor in training, or supplier certification.
- **Capital investment, such as adding a production line usually requires more than six months of lead-time.** Communicating the need for these decisions should be one of the objectives of S&OP. Viewing your family plans by constraints will give clarity to some of these decisions.

When you are unable to change your constraints by increasing capability, your S&OP process should highlight the trade-offs that might be required to meet demand. There are three levers available to you to address a demand and supply imbalance: Backlog, Inventory and Flex Capacity. Because each of these levers has a cost, knowing when to deploy one of these options is the strategic advantage of a good S&OP process.

- **Backlog Lever:** There are two options with backlog. Extending your lead-time on new orders and increasing your future backlog or allocating inventory/production and allowing some backlog to go past due. The obvious cost to this may be service levels, and the impact of this will depend on your business or competitive position in the marketplace.
- **Inventory Lever:** Allowing finished goods inventory to flex up and down can help buffer against short term imbalances. In most seasonal business, building an inventory buffer ahead of the season helps to balance the capacity requirements. You may also reduce your finished goods inventory below planned levels. This may also include flexing down channel inventory. Costs of using inventory as a buffer include carry cost, capital cost, and potentially service levels.
- **Upside Flex Capacity:** Running planned production at less than full capacity allows for short-term increases in production. This is possible only if your material plans are based on your upside flexibility, or if the flexing of production is planned outside of your material lead-time. The cost of this lever is holding unused capacity, and carrying buffer inventory.

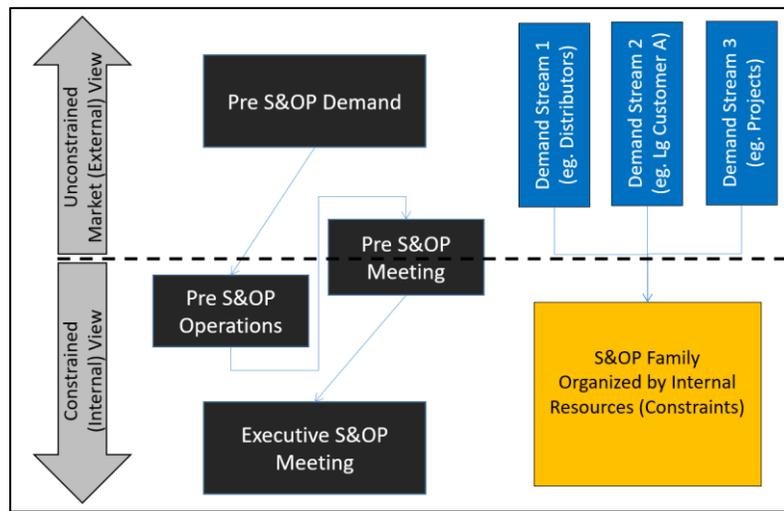
Once again S&OP at the constraint level allows you to see when one or more of these levers must be pulled.

I've focussed primarily on demand imbalances where demand is greater than supply capability. For many of the companies that we are working with, this is the situation that they are in right now. However, the view by constraint is also valuable when demand is less than your capability. Seeing your S&OP demand plans against an aged backlog targets, inventory

targets, and a known capability line will also show what levers should be pulled in order to free up resources.

Making it Work

I've covered a lot of ground in this article but wanted to give you some idea on how to work between demand stream data (Market View) and your constraint-based family. The following diagram covers how this view is used in the S&OP process.



1. Demand is captured and planned at the demand stream level (blue boxes).
2. Track bookings, shipments and backlog by demand stream.
3. Use the demand stream view in the Pre-S&OP Demand Meeting to develop the unconstrained demand plan.
4. Consolidate demand by S&OP family (constraint based) for your Pre-S&OP Operations meeting.
5. Use the Pre-S&OP Operations meeting to constrain demand (if required).
6. Look at the overall shipping plan, aged backlog, capability, inventory targets and planned inventory to develop the supply plan.
7. Balancing decisions should be identified and if possible, finalized in the Pre S&OP Meeting. This may require looking at both demand streams as well as consolidated demand.
8. Report at the Executive S&OP Meeting by constraint-based families using the 5-Section Sheet.

Following this approach will allow you to move from an unconstrained shipping plan to a constrained and balanced S&OP plan. It will also highlight what levers you need to pull in order to achieve this objective.