

An Executive White Paper

Successful Sales and Operations Planning in 5 Steps



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Executive Overview

The Sales and Operations Planning (S&OP)¹ process is well known and understood in the world of supply chain management. In most companies, the monthly S&OP meeting brings executives from all major operational departments – sales, marketing, materials/procurement, manufacturing, transportation, and finance – together to determine how best to manage company resources to profitably satisfy customer demands over the next quarter, year and beyond.

The monthly S&OP meeting is a critically important, high-level decision-making activity that sets the overall direction for the company. Executives discuss the various trade-offs between customer service, inventory investments, production capabilities, supply availability, and distribution concerns. In essence, the executives determine how the company's resources will be spent in an effort to strike an optimum balance between what generates the most profit and satisfying the company's most important operational goals.

There's no debate, S&OP cannot be completed effectively without reliable, accurate information. The S&OP team must have up-to-date information regarding future time-phased demand, production capabilities, inventory status, and any limitations on resource availability such as warehouse space, transportation capacity, limits on cash or credit, and their influence on each other and overall company results.

There are a number of tasks and analyses that need to be completed prior to each executive S&OP meeting to make the most efficient use of the monthly planning session. These include:

- Innovation and Strategy Review – impact of New Product Introductions (NPIs)
- Demand Review – includes base-line demand as well as demand sensing and demand shaping activities
- Supply Review – monitor inventory levels and production capabilities
- Financial Integration – ensure balanced demand and supply plans meet company financial objectives and are within working capital constraints
- Executive Business Review – executives from all major departments review future plans and impact

These tasks gather and prepare the information the S&OP team needs to fully understand the range of considerations that must be included in their decision-making. Armed with this information, the S&OP team can make the tough decisions that will ultimately determine how well the company performs, regardless of the priorities and challenges.

¹This process is also called SIOP – Sales, Inventory and Operations Planning. The objectives and the process are the same. Use of the term S&OP is not meant to imply, in any way, any diminished importance of inventory planning.

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S&OP Process Challenges

As with any multi-department process, there will be challenges that a company must overcome. An October 2009 AMR Research report identified these key S&OP challenges:

1. Data timeliness and quality
2. Using plan in daily operations
3. Connecting strategy to S&OP
4. Moving from demand/supply focus to profitability
5. Getting plan agreement

As S&OP became more global and companies settled in to the process of bringing teams together, according to the AMR Research² report, the big challenge changed from coordination of global teams in 2007 to the need for data quality and timeliness. Data was pulled from disparate systems at different times and often delivered differing results from an overload of Microsoft Excel spreadsheets. Instead of one version of the truth, organizations have been faced with conflicting opinions of fact.

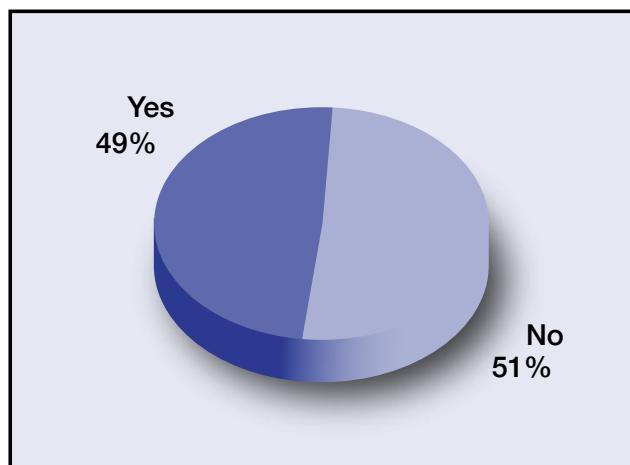
The right tools in place help ensure data quality and drive towards determining a feasible plan where consensus can be reached by all attending departments. There are many tools available today to gather and prepare the information and model the multiple scenarios that are needed for an effective and efficient S&OP process. The more thorough the preparation, the more efficient and effective the meeting will be and the better the resulting plan.

The second most identified challenge was using the plan in daily operations. The natural tendency is to attend to the “squeaky wheel.” The change in thought process has to be towards the activity that provides the greatest impact towards reaching corporate goals. S&OP helps develop a plan and set priorities to maintain this focus.

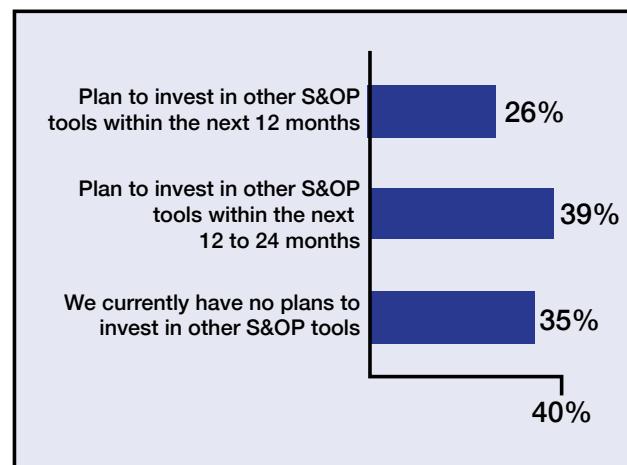
"The right tools in place help ensure data quality and drive towards determining a feasible plan where consensus can be reached by all attending departments."

Figure 1: Over half the market still relies on Excel, Access or PowerPoint for S&OP.

Using Tools Other Than Microsoft Excel, Access, or PowerPoint for S&OP



Plans to Invest in Other S&OP Tools Over the Next Two Years



N = 182 responders

Source: AMR Research, 2009

²"S&OP Technology Market Update: Picture Still Murky" Noha Tohamy and Karen Carter, AMR Research, October 29, 2009

“Without visibility of the financial impact of decisions made during S&OP, it is difficult to fully understand the impact of sourcing, inventory, postponement, and other pivotal business strategies.”

Another challenge that has appeared in many research studies is the integration with finance and understanding the role of finance in S&OP. In an increasingly cost conscious environment, integrating finance into the equation is gaining importance. While a shift, it also follows with recent data from AMR Research³ that shows more than 60 percent of supply chain executives now report directly to a member of the C-suite. Excluding finance in the process can cause S&OP to lack support of the executive team and whither on the vine.

Another key reason to have finance involved is the concept of shared metrics. Without visibility of the financial impact of decisions made during S&OP, it is difficult to fully understand the impact of sourcing, inventory, postponement, and other pivotal business strategies. (The concept and impact of metrics on the S&OP process will be discussed in more detail later in this paper.)

S&OP is a process that by nature unites all key constituents to a single goal. Senior level executives responsible for sales, marketing, materials/procurement, manufacturing, transportation, and finance meet to consider the needs and constraints of each of their respective areas in light of overall company objectives, and agree on an operating plan for the next month, quarter and year. This process is repeated each month as the plan is updated and extended.

The key word here is agree. The S&OP process is one of compromise. The best performance in inventory control, that is, the lowest inventory level, will not yield the highest customer service. High customer service is expensive. The most efficient production will likely increase inventory and may not coordinate with sales shipment objectives. Dealing with these trade-offs is at the heart of the S&OP process.

In order to balance sound business decisions to construct the best overall plan, the S&OP team must have accurate, reliable information – the current status, future conditions, constraints, and concerns about demand, production, inventory, procurement, and finance. They must also know how changes and decisions in one area impact performance in others. And, they need the flexibility to evaluate multiple business scenarios—optimistic, pessimistic and realistic. Without this information, executives must rely on experience, intuition and risk assessment.

These challenges are not insurmountable; in fact, the following five steps can make your planning process impactful and effective.

³“Supply Chain Gets a Promotion” Kevin O’Marah, AMR Research, March 28, 2010

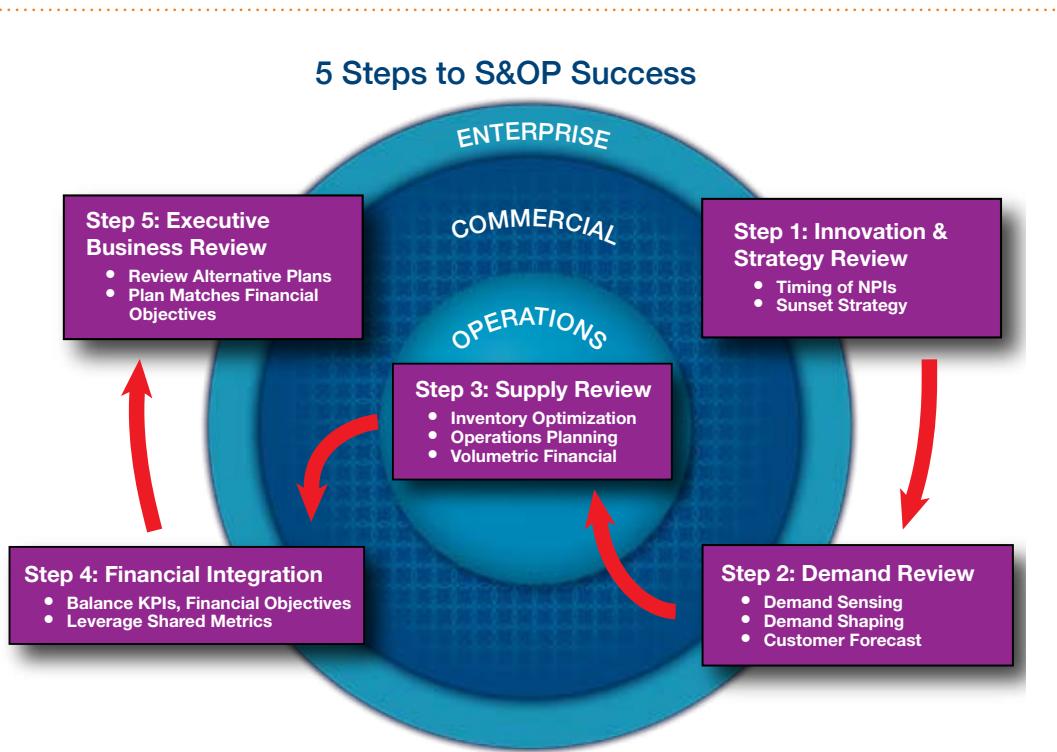


Figure 2: The 5 critical steps and the interaction with each other to create a consensus plan for a company to follow.

Step 1 - Innovation and Strategy Review

An important consideration for any company is managing product lifecycles.

- What products should we introduce to the market place?
- When should we introduce them?
- What products should we sunset or discontinue?

These are all critical questions to answer and the impact on sales, production, inventory, and finance must be understood.

Introducing new products is a key aspect of the innovation and strategy review. NPIs can significantly impact the well being of a company including inventory and lost sales. The ability to predict sales on NPIs, where there is no sales history to model, can be difficult. Traditional time-series forecasting tools that utilize history will not work effectively for NPIs. To overcome these challenges, more advanced techniques must be employed.

Companies that have been successful in managing NPIs utilize advanced techniques such as attribute-based forecasting which generates demand profiles for new products based on existing product demand tied to identifiable attributes such as style, color, season, material type, etc. A well-designed attribute-based forecasting system will continually monitor demand signals, quickly recognize any deviation from the forecast, and adjust the assumptions and forecast to match the actual demand signals.

In addition, attribute-based forecasting techniques can be used for product retirements. When retiring a product, the history for that product is no longer a reasonable indicator to predict a retirement demand profile. Attribute-based forecasting is a preferred method to predict how fast or slow the product will sell during the retirement phase by looking at how products with similar attributes have been previously retired.

Having solid forecasts for NPIs and retirements is an essential first step in preparing for the S&OP meeting.

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"Often, company management and the S&OP team take the approach that demand variability is a given; the challenge is to understand it and act in the most effective way possible. That is true to a certain extent, but demand can be influenced and driven to meet the company's objectives. Through proactive measures, you can shape demand to meet company goals."

Step 2 - Demand Review

A primary output of the S&OP process is a decision on the level of customer service the company will strive to achieve through the effective use of all of its resources. To plan to meet demand, you must know what current demand is and how it can change over time, the art and science of the forecast.

Proven forecasting techniques rely on rigorous statistical analysis of past demand including orders, shipments and point-of-sale (POS) patterns overlaid with demographics, product lifecycle projections, seasonality factors, and management judgment. These techniques abound for mature products with a sales history though each still requires consistent and accurate information. To this end, collaboration is critical and must be sought whenever possible while developing, refining and creating consensus forecasts. Customers, distributors, sales reps, and marketing all have information and insight that can augment and improve on the statistical forecast to boost accuracy.

Demand Sensing

A forecast is never 100 percent accurate. Realizing this, management will formulate plans that recognize expected forecast error and compensate accordingly. Nevertheless, it is important to monitor forecast accuracy on a continuous basis. As real demand occurs, it can be captured and compared to the forecast. Early detection of differences and trends will help avoid shortages / over-production and can be used to adjust the forecast to bring it closer to actual demand. This should be completed on a regular basis, even in between scheduled updates.

Multiple demand signals can assist in sensing changes in demand patterns. For example, orders, shipments and POS can be used in combination to show if changes occur. The most detailed and up-to-date demand signal is POS since it provides true consumer purchasing activity. Anything further upstream does not indicate how much of the product actually sold; it simply provides details on what is still in the customer supply chain. For purchase parts and raw materials, many companies have established close collaborative relationships with their suppliers to pass actual usage data upstream for POS-like timeliness.

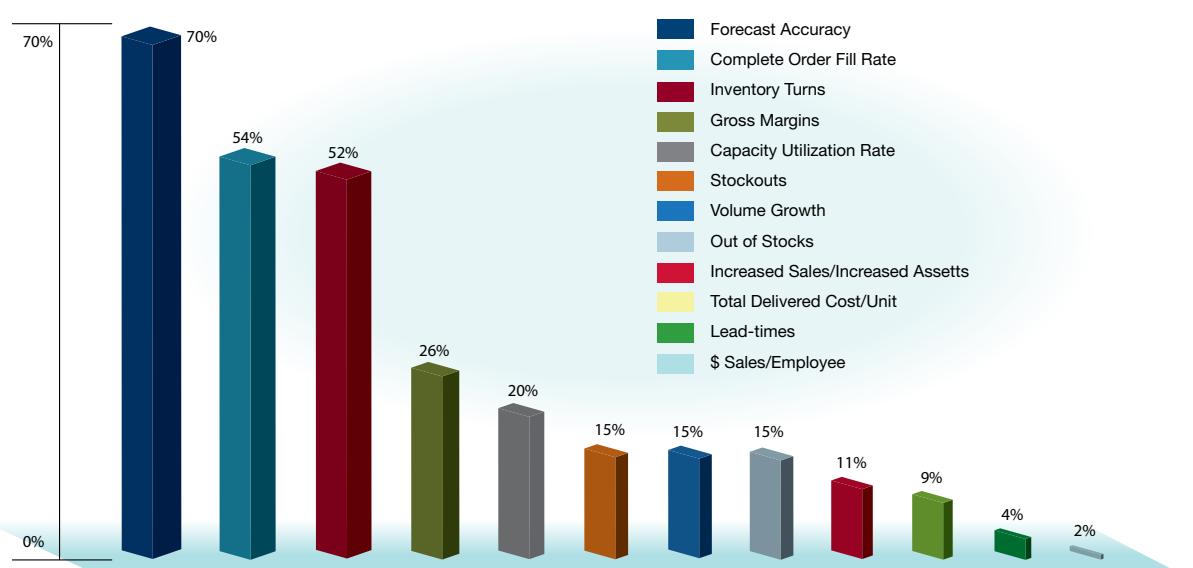


Figure 3. Top metrics used to measure S&OP success.

Source: Logility, Inc., 2009

Recent analyst firm surveys have shown manufacturing executives cite a strong need for improved forecasts and more timely demand sensing to provide more visibility to supply chain and manufacturing teams into real demand to provide field sales people or brokers with a better ability to resolve out-of-stocks and capitalize on selling opportunities as well as improve stock positions, especially on promotions. Demand sensing also enhances the ability to differentiate the demand for individual products within product lines or groupings. Not all products sell at the same rate; inventory position and policy must recognize these differences to be able to provide optimum availability and avoid stock-outs and/or oversupply.

Demand Shaping

Often, company management and the S&OP team take the approach that demand variability is a given; and the challenge is to understand it and act in the most effective way possible. That is true to a certain extent, but demand can be influenced and driven to meet the company's objectives. Through proactive measures, you can shape demand to meet company goals.

Many companies are engaged in demand shaping; however, most do so disconnected from the overall operational plan. It is crucial for a company's on-going profitability and growth to make demand shaping an integral part of the S&OP process.

For example, if one plant has available capacity, it might be prudent to develop a promotion plan to drive demand to fill up that plant's capacity. Promotional activities in support of a new product launch are frequent demand shaping techniques. Advertising, pricing actions, coupons, and incentives to salespeople, dealers or retailers are all examples of demand shaping activities.

Any demand shaping plan must be developed in conjunction with the forecast. As demand is changed the forecast must be adjusted accordingly or you will create a major ripple throughout your supply chain. There's an iterative loop implied here:

- Initial forecasts and plans reveal an opportunity where increased demand would improve results

- Demand shaping activities and expected results are proposed
- Forecast changes reflect the expected changes in demand
- The full planning process reveals the resulting changes in sales, inventory, production, logistics, customer service, and profit

Inherent in the demand review is balancing the demand plan against the company's overall financial objectives. It is critical the demand plan and the alternatives presented at the executive S&OP meeting are created to meet service level, inventory, production, and profitability objectives.

Step 3 – Supply Review

Once the demand plan is finalized, the supply team needs to determine how they can meet the demand plan. Two elements are key in determining how to profitably satisfy the demand plan.

They are:

1. Inventory Optimization – How much inventory is currently available and where is it in the supply chain?
2. Production and/or Procurement Optimization - Do we have the production or purchasing capability to meet the demand plan?

Inventory Optimization

Inventory is one of the largest investments that a company will make and is the primary determinant of customer service. It is therefore appropriate that inventory policy and specific inventory positioning decisions be key outcomes of the S&OP process. Where to keep product across the supply chain including raw material, work-in-progress (WIP) and finished goods helps optimize the financial investment in inventory.

The primary purpose of finished goods inventory is to meet expected short-term demand while components and raw materials provide for the needs of manufacturing to meet future demand. The right amount of the right inventory in the right place at the right time helps prevent lost sales though this must be balanced with the cost and risk of holding too much inventory as that will place a strain on cash flow. To balance this, many companies optimize for each location, product, and channel within overall company objectives such as total inventory investment and customer service requirements.

"The heart of the S&OP process focuses on balancing these trade-offs to develop the plan that best satisfies the needs of the company as an entire organization, not just a silo within the company."

"The ability to see the interaction among the various factors is the key to ensuring the supply team is effectively utilizing available resources."

The best way to set inventory plans and policies is to thoroughly analyze and understand the relationships between various stocking decisions, service levels, and inventory investments for each category of goods, channel, and customer or customer group. This is where the most difficult decisions are evaluated. The sales team wants the ability to ship any product every day which requires a higher inventory level to improve fill rates and avoid stock-outs. Procurement and finance, on the other hand, want less inventory to reduce costs and improve cash flow. Production wants more components and raw materials to reduce the risk of manufacturing disruptions due to shortages and wants to match production schedules with efficiency, regardless of demand. The heart of the S&OP process focuses on balancing these trade-offs to develop the plan that best satisfies the needs of the company as an entire organization, not just a silo within the company.

To optimize inventory, supply chain leaders run simulations that explore the dynamics of the demand/inventory to availability/service level relationship. They also review and identify the ideal stage, raw, WIP and finished, for each product in inventory, and the proper placement of inventory in the distribution network. Simulation allows a choice of methods including minimize inventory, service objectives, minimize short shipments, and various order quantity options including economic order quantity (EOQ), inventory turns, 'x' days of supply, capacity-limited EOQ, etc. Additionally, these leaders consider the redeployment of inventory, moving of excess inventory from one warehouse or distribution center (DC) to another DC instead of making more product.

To take this a step further, you can include planned events such as pricing actions, sales incentives, advertising changes, and competitive actions when running the simulations. Simulations and proper planning through collaboration can help make sure there is sufficient inventory and logistics capability to cover any changes in demand driven by these events.

Operations Planning

The bottom line is about shipping product – when, where and how much. The challenge is to develop a supply plan that profitably meets company objectives. When developing a supply plan, manufacturing must take into account multiple considerations including:

- Do not exceed a pre-set level of production on certain products during a specific period, or overall production during a given time, whether expressed in units, pounds, hours, or some other indirect measurement
- Do not exceed the availability of certain components
- Do not exceed production capabilities; no overtime
- Minimize inventory build-up to accommodate high-demand periods (this often conflicts with the previous point)
- Do not exceed a certain level of inventory at one, several, or all distribution center(s) or do not exceed a certain inventory value or volume at a location, a group of locations or overall
- Maintain 99% service for certain customers and 95% for the rest, or different service levels for various products, product lines, channels, or regions
- Minimize less-than-truckload (LTL) shipments; minimize overall transportation costs; eliminate premium freight; or only use owned or contracted transportation resources

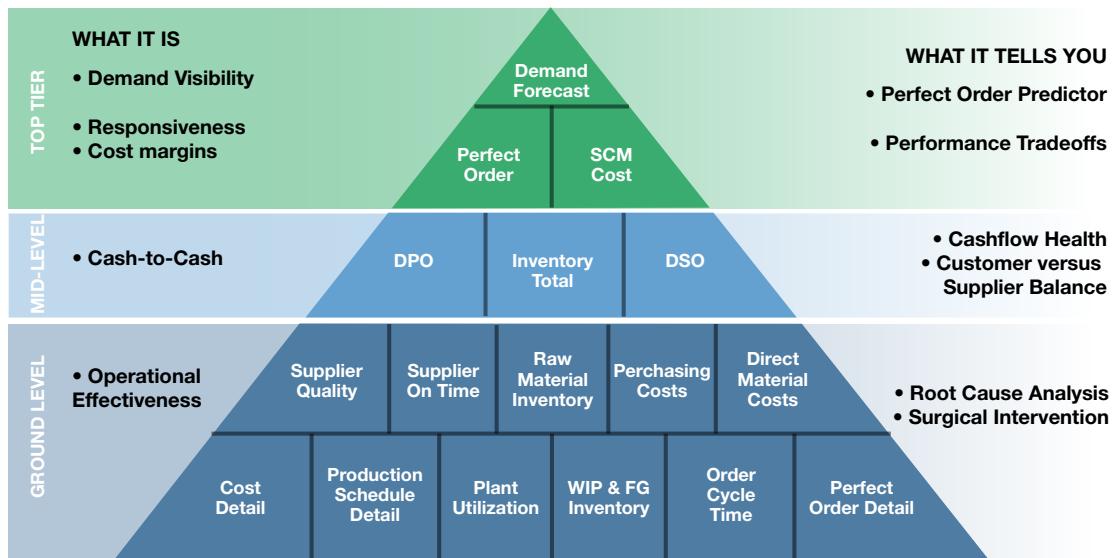
The only way to intelligently make this kind of complex decision is to have the information available along with the ability to explore the impact of various factors through simulation. The ability to see the interaction among the various factors is the key to ensuring the supply team is effectively utilizing available resources. The supply team will analyze the findings of the various scenarios, and perhaps suggest alternative strategies that can be modeled to test their effectiveness.

Collaboration is essential at this stage. It is important to discuss alternative scenarios with the affected partners and ensure that critical parts and resources can be made available in sufficient supply to support any plan that the company might want to enact. It is also appropriate to discuss any significant changes in demand or distribution expectations with the affected sales people to get their concurrence that the expectations are realistic and uncover any possible snags in the plan they might be able to identify based on their knowledge of the customers and the markets.

Step 4 – Financial Integration

This is the most critical of all the pre-S&OP processes. While the demand and supply teams have kept the company's overall objectives in mind, in many businesses some bias creeps into the process. The financial review step removes that bias. It is at this time that all constituents agree on the final demand and supply plan and what alternative plans will be presented during the executive S&OP review.

Figure 4: The Hierarchy of Supply Chain Metrics



Source: AMR Research, 2009

It is crucial during the financial integration step that key metrics are balanced against company financial objectives. A key technique in boosting S&OP effectiveness is leveraging shared metrics. This combats the issues when objectives are looked at from a silo perspective. For example, the VP of manufacturing may be measured on how efficiently operations utilize available resources (total uptime). When viewed from a silo, running at 98 percent efficiency looks fantastic; however, when viewed from a shared metric perspective, 98 percent efficiency may drive excess inventory in products where there is little or no demand. That is why it is imperative to adopt a shared metric view for S&OP.

Figure 4 shows a number of metrics that companies can use to measure the health of their supply chain. But it is not a one size fits all view. Each company must look inward and determine which metrics they need to focus on that will enable them to sustain profitability.

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"The ultimate objective of the S&OP process is to leave the meeting with an operational plan that best achieves the company's objectives within known constraints."

Step 5 – Executive Business Review

The ultimate objective of the S&OP process is to leave the meeting with an operational plan that best achieves the company's objectives within known constraints. The deliverable from the executive business review is a list of actions that implement the decisions and plans agreed upon.

Besides reviewing best case and alternative demand and supply scenarios, it is imperative that executives assess risks to their supply chain.

Risks include:

- Quality issues
- Supplier failure
- Demand spikes
- Demand disruptions
- Obsolescence
- Strikes – internal and with external suppliers

Understanding the impact from these and other risks and having contingency plans in place is paramount for any company. Having the supporting information from the demand, supply and financial teams makes this an informed decision as opposed to a 'shooting from the hip' decision.

Between meetings, department heads and managers carry out instructions, and keep a close eye on current activities and events in order to detect any deviation from what was outlined in the plan and bring that information to the attention of the appropriate individuals as quickly as possible. Corrective actions can bring the situation back in line or, if that isn't possible, the plan may have to be revised with the new constraints in force. Simulation becomes a key tool once again in responding to deviations from the plan; alternative responses can be tested for the S&OP team to consider in revising the plan.

Figure 5: S&OP Meeting Agenda Topics

Agenda Topics	
	<ul style="list-style-type: none"> • What has changed since last month? • Are we "on plan" financially? • How are we executing to performance metrics? • What new risks do we need to consider? • What decisions need to be made now? • What decisions need to be made in the near future? • How are product families performing? • Are we on track with product development? • Do we have any critical constraints? • Is there any need to revise long term plans?

Adapted from "Enterprise Sales and Operations Planning" by Palmatier & Crom, 2003

A Plan Goes into Action

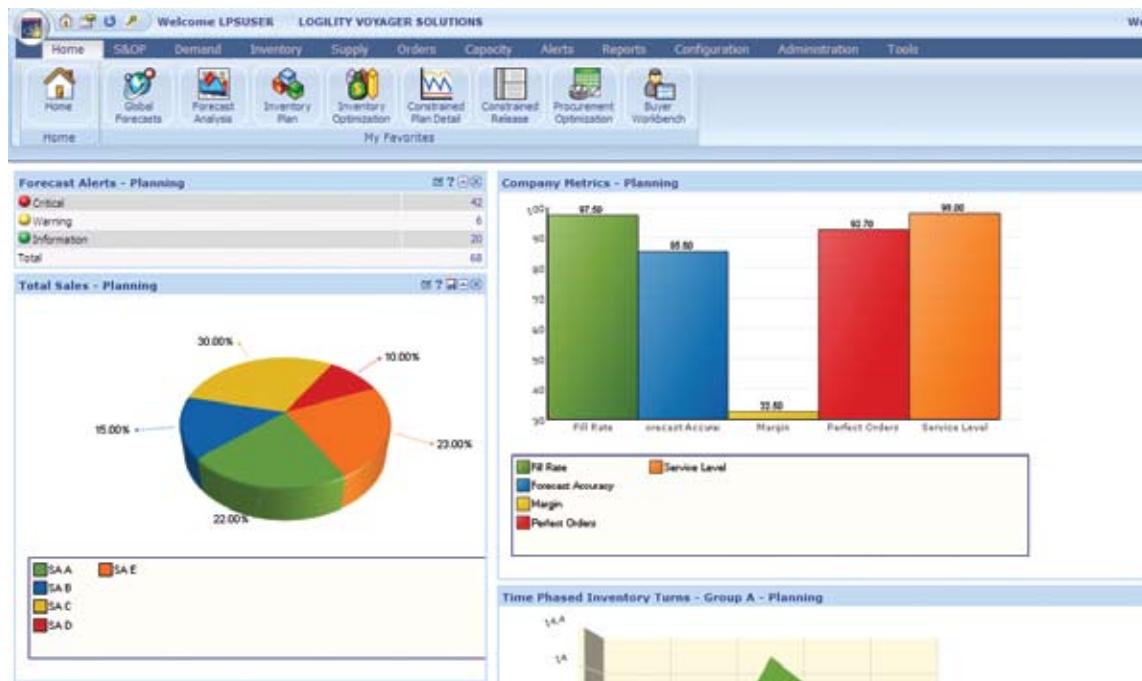
Sales, inventory and operations planning come together in the form of a monthly meeting between the executives responsible for sales, marketing, inventory, procurement, production, and finance. At the executive S&OP meeting, the challenging decisions are made as to how the company's resources will be applied to meet company objectives, including customer service and profitability, within the constraints and capabilities available. Typically, a one-year plan is advanced, with successively more detailed quarterly and monthly plans. Once the plan is set at the monthly meeting, the group does not need to meet again until the next month unless there is a significant deviation from the plan that must be addressed immediately.

Because the primary business of the executive S&OP meeting is to compare and balance trade-offs between the various competing objectives this information must be made available to the team before and during the meeting. Proper preparation can make the S&OP meeting efficient and effective.

This planning involves the need to model several scenarios and understand the impact each has to the company. It is easy and more comfortable to provide the model that everyone wants to see; however, understanding how deviations in supply or demand can lead to more reliable roadmaps and growth, and improved bottom line results.

"Sales, inventory and operations planning come together in the form of a monthly meeting between the executives responsible for sales, marketing, inventory, procurement, production, and finance."

Figure 6: S&OP in Action - Logility Voyager Solutions deliver visibility to monitor, measure and present multiple scenarios.



About Logility

With more than 1,250 customers worldwide, Logility is a leading provider of collaborative, best-of-breed supply chain solutions that help small, medium, large and Fortune 1000 companies realize substantial bottom-line results in record time.

Logility Voyager Solutions™ is a comprehensive supply chain management solution that features performance monitoring capabilities in a single Internet-based framework and provides supply chain visibility; demand, inventory and replenishment planning; sales and operations planning (S&OP); supply and inventory optimization; manufacturing planning and scheduling; transportation planning and management; and warehouse management. For more information about Logility, call 1-800-762-5207 or visit www.logility.com.

Planning software provides the ability to develop 'what-if' plans and scenarios to test possible changes in policies, the effect of constraints and varying conditions. The result of this analysis is reviewed by the S&OP team and additional scenarios might be run to test other alternatives while developing the final plan.

For example, through modeling multiple scenarios, opportunities may be uncovered where demand shaping can stimulate sales. In these cases, additional models can prove the validity of promotional programs and incentives through revised plans. The next step is to confirm the new plans through collaboration with key suppliers, sales personnel, logistics suppliers, and others that might be taxed by unusual demand for their products or services.

The more work that goes into the preparation process before the meeting, the more efficient and effective the meeting will be. The availability of simulation tools for use during planning discussions makes the decision process much more precise and allows executives to clearly see the impact of the operational and policy decisions they are making.

Proper preparation creates a defined, repeatable process and gives executives the confidence to develop and execute the best plan possible to drive the business toward its goals.



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