

APICS INSIGHTS AND INNOVATIONS

HOW TO BE AN S&OP CHAMPION



APICS S&OP FOLIO

How to Be an S&OP Champion

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How to Be an S&OP Champion

Foreseeing the future is thought to be impossible; yet, sales and operations planning (S&OP) users seek to do just that by strategically and tactically directing businesses to achieve competitive advantage. In fact, many companies successfully took advantage of S&OP to survive the worldwide economic downturn and remain profitable.

When APICS The Association for Operations Management and the Institute of Business Forecasting and Planning (IBF) analyzed recent S&OP survey data, what they found was surprising: While 65 percent of respondents indicated that S&OP skill and experience are essential to their careers, 36 percent of those respondents' companies have stalled or are moving forward only marginally with S&OP efforts.

Building on the discoveries revealed in the APICS and IBF report, "2011 S&OP Practices and Challenges," the *APICS S&OP Folio* sets out to identify the basics of what makes S&OP successful within organizations and how managers and S&OP leaders can help companies overcome S&OP challenges.

HOW DO YOU DEFINE S&OP?

Bradley McCollum, the sales and operations planning manager for the Leisure and Entertainment Group of the Jarden Corporation and the author of the Sales and Operations Planning department in *APICS* magazine, advises that defining S&OP is an essential aspect of understanding it.

With almost 30 different speakers [at a recent S&OP conference], it became clear to me that many had differing definitions of S&OP... As many businesspeople look to implement S&OP ... there are new acronyms to learn, misunderstandings to figure out, and added complexity to deal with.

Definition is the first crucial step in any S&OP initiative. With that in mind, consider the definition of S&OP in the APICS Dictionary, 13th Edition:

A process to develop tactical plans that provide management the ability to strategically direct its businesses to achieve competitive advantage on a continuous basis by integrating customer-focused marketing plans for new and existing products with the management of the supply chain.

The process brings together all the plans for the business (sales, marketing, development, manufacturing, sourcing, and financial) into one integrated set of plans. It is performed at least once a month and is reviewed by management at an aggregate (product family) level.

The process must reconcile all supply, demand, and new-product plans at both the detail and aggregate levels and tie to the business plan. It is the definitive statement of the company's plans for the near to intermediate term, covering a horizon sufficient to plan for resources and to support the annual business planning process. Executed properly, the sales and operation planning process links the strategic plans for the business with its execution and reviews performance measurements for continuous improvement. See: aggregate planning, executive sales and operations planning, production plan, production planning, sales plan, tactical planning.

The APICS Operations Management Body of Knowledge (OMBOK) Framework provides this description:

S&OP develops a midrange plan to operations using input from top management. The plan identifies key resources to achieve the firm's strategic objectives and goals, and is the basis of all subsequent material and labor resource decisions and for the master production schedule.

PUT S&OP INTO PRACTICE

Imagine you are a senior supply chain manager at a small-to-medium enterprise (SME) that produces make-to-stock and make-to-order product families. You worked at this organization for the past four years. S&OP implementation, once again, is discussed.

The enterprise is challenged by rising material prices, heavyweight marketplace competition, increasing customer demands, and aging plant and equipment, which means that business as usual is no longer sustainable.

However, past S&OP efforts ran into difficulties that include department silos, egos, and a business culture that tolerated and expected make-up efforts in the fourth quarter to address projected year-end shortfalls in annual sales and production goals. Therefore, past S&OP efforts never met the full potential.

In the present, some middle and senior managers see things differently. Recent efforts to focus product strategy on revenue growth, combined with cost reduction, have resulted in a string of late product launches, soaring product development costs, and customer complaints about product quality and availability. Managers complain about unrealistic timelines and budgets, encountering unforeseen risks, and increasing complexity in new product development and production.

Other managers want to continue with only moderate change by pursuing even leaner inventory and production methods compatible with the business culture. These efforts already have helped profitability and output. However, the same managers admit that these lean efforts have not delivered desired results in demand planning, marketing, and long-term strategy.

A senior consultant recently analyzed organizational performance against a series of benchmarks and presented the following observations to senior managers:

- Improve reliable execution down the management chain of strategic business imperatives, particularly in new product and business development.
- Eliminate the causes behind slow and unresponsive demand planning and pricing because the company is losing business and margin to competitors. This requires sales and marketing professionals to demand unplanned rush production orders and conduct price campaigns.
- Better utilize the organizational enterprise resources planning (ERP) systems. Important data need to be input or appropriately reviewed.
- Recognize that organizational forecasting is not reliable, which harms production planning and marketing.
- Analyze why supply chain planning and supplier relationships are less than optimal, and force a focus on short-term needs over long-term strategic improvement.

The consultant recommends reimplementing S&OP to address these and other challenges. Senior management has adopted this recommendation and tasked your team to be the core champion of the process.

SET YOUR S&OP FOUNDATION

Lay the groundwork, prime yourself, and prepare a solid S&OP process with your eyes wide open.

This process must include a designated senior executive who acts as a sponsor. The person must be someone your team can report to and strategize with in terms of S&OP preparation and implementation. This senior manager should have a deep commitment to S&OP and a willingness to address issues that only senior managers can ultimately resolve.

For S&OP to work correctly, McCollum says, it must have support from the top, and it can't be owned by a particular silo or department within the organization. Sales, marketing, operations and supply chain, and finance must be equal participants.

"Members of the executive team need to be educated about the approach, the project, and the end product before you can gain their explicit commitment," McCollum writes. "A well-respected S&OP coach or advisor and an executive champion are key participants in gaining this commitment."

Organizations without S&OP may "unconsciously" attempt to establish equilibrium between demand and supply. However, S&OP demands a formal and rigorous process. An effective, long-term S&OP process needs a strong foundation and requires the following to be established:

- Establish, in writing, senior management support, clear organizational expectations, long-running commitment, and positional empowerment.
- Create and deliver value through optimal alignment of strategic goals and tactical execution of those goals that accounts for organizational strengths and pain points.
- Use empowerment to ensure that job roles have the formal task of supporting S&OP.
- Link people and the departments they represent.
- Measure the right things in the right way. Use metrics, key performance indicators, and reports because they are clear and intuitive. Ensure that these reports accurately and impartially present the current status.
- Ensure focus remains on the execution of plans, strategic goals, and continuous improvement. Have processes and expectations in place to prevent the S&OP process from bogging down, or drifting into unproductive, unfocused efforts.

BE AN S&OP LEADER

Because you are the champion of the team tasked with implementing the S&OP process, you must research what happened previously. You have to ask questions to find answers:

- Where did silos prevent shared perspectives?
- Which groups count on the “we’ll make it up in Q4” business culture?
- Who feels most exposed to risk from new business practices?
- Where are sensitive areas within management in terms of missed expectations and hard-to-meet responsibilities?

Your group must address objections and set new expectations. If this is done correctly, the painful, unsustainable past model will transform into an enduring, shared process.

You must acknowledge that this will take trust and commitment, which you as an S&OP champion, intend to demonstrate through responsive attention to hurdles, open communication, and ongoing consensus development.

As with any change or investment, there will be new risk, but the rewards of S&OP are worth the risk. You must make clear that in return for your efforts, you require 100 percent commitment from all participants. It is essential to demonstrate senior management commitment.

To be successful as the S&OP champion, you must be familiar with the organization’s tactical plans, strategic goals, and business plans. This may require senior management to present the big picture perspective to ensure you have no gaps in your understanding. Your focus should be on understanding how these strategic plans will deliver ongoing competitive advantage through the integration of customer-focused marketing plans for new and existing products within the management of the supply chain.

Plus, you must understand how individual departments see things, the specific plans and goals, and compare current actions with those plans and goals.

Next, work out at a high level how a realistic process could gather and reconcile all supply, demand, and new-product plans at both the detail and aggregate levels.

Create realistic processes that balance supply and demand of a product family in the context of organizational strategic and tactical requirements.

In the end, you should have tools, measurements, ratings, and metrics to scrutinize the right indicators, and you should have identified stakeholders and their responsibilities.

After the necessary product data are determined, the S&OP champion needs to identify the other players. Important people in the S&OP process provide insight in terms of reporting plans versus actual practices and outcomes.

Think about the reports that will be needed by all participants. What must the reports contain, and who will provide them on an ongoing basis?

Identify the supporting, reassuring, and persistent directions and directives that will be needed during the S&OP process in order to permit open discussion and execution on high-stakes decisions.

At this point, you should take the strategies you have identified to your senior manager sponsor. Only when you both feel ready, should you move forward and begin the S&OP process in your organization.

ESTABLISH PARTICIPANT PREPARATION AND COMMITMENT

Once the S&OP strategy is established, work with the S&OP process participants to flush out tactical information, which must include

- a full commitment to attend the S&OP meetings at specific times
- a commitment to attend S&OP premeetings in advance of specific S&OP meetings, prepared to address supply and demand data and related issues.

Participants have to do some homework in advance of the premeeting. You should personally meet with the participants, if possible, and explain the scope, breadth, and depth of the S&OP process and questions and discussions you anticipate.

Ask participants to be ready with meaningful data, forecasts, metrics, and reports. In addition, ask about the impact on the tactical and strategic goals of the organization. Address any questions that arise.

After the first premeetings, ask your senior manager or sponsor to provide feedback. The additional perspective can identify the subtext of issues, problems, and risks that need attention.

Work at an individual level with participants and stakeholders in advance of the S&OP meeting. Your goal is to build trust and confidence, maximizing what is achievable by the S&OP process.

Remember, not all problems or challenges have perfect solutions. Instead, your goal should be to seek improvement, while at the same time, improve understanding of the real-world causes and constraints which prevent alignment of supply with demand.

Work for continual improvement. S&OP is a process and a practice. With strong commitment, improvement will come with continued effort.

SUCCEED IN THE GOLDEN FIRST SIX MONTHS

The first half year of S&OP is a critical time. Organizations that ultimately stop practicing S&OP typically do so in the first six months.

Anticipate and respond to this potential outcome. The commitment of participants will build if they see ongoing benefit, progress, trust, and confidence, even if the process is imperfect.

You must ensure senior management reinforces the commitment to S&OP with recognition of progress, reinforcement of expectations, and response to areas needing attention.

Make sure to communicate specific recommendations and the reasons behind them to your senior management and sponsor.

BUILDING YOUR SKILLS

Consider the definition of executive S&OP from the *APICS Dictionary*, 13th Edition:

The executive portion of the overall sales and operations planning set of processes. It is a decision-making activity involving the leader of the business (president, general manager, chief operating officer, managing director), his or her staff, and a number of middle managers and specialists. Its mission is to balance demand and supply at the aggregate level, to align operational planning with financial planning, and to link strategic planning with day-to-day sales and operational activities.

An S&OP champion must be comfortable with change management because successful S&OP means change and change and change again.

- Establish a set of resources.
- Know the limitations of the organization.
- Act to produce situations that lead to S&OP goals.

Successful S&OP does not rely on a perfect, paper-based solution each month. Forecasts are never perfect; it's easy to get bogged down working out a perfect plan. Instead, keep moving forward. Successful S&OP relies on the motivation of the professionals involved in the process.

If senior management, the S&OP champion, and all of the participants believe in the process, that is what will get the job done in iterative continual improvements over time. Successful results move the organization closer to the desired outcome, even if the method used turns out to be different or a little less perfect than originally planned.

Operations and supply chain management professionals tend to feel that implementing a successful S&OP process is outside of their control because of the many requirements of balancing demand and supply which are beyond their formal responsibilities. However, these dependencies tend to be within the influence of operations management professionals. It's important for an S&OP champion to understand this and work through the previously outlined steps.

S&OP users who have experienced success indicate that S&OP skill and experience are essential to their careers. Furthermore, these same individuals agreed that S&OP is the future of operations and sales in most organizations. Are you ready for the future?

READINESS CHART

Use this checklist to evaluate participant S&OP perceptions and to identify potential strengths and challenges.

Readiness challenges

- Major changes drive fear. My organizational culture relies on or tolerates fear and, therefore, encourages people not to share information.
- My organization consists of a collection of silos using disconnected business processes.
- My organization lacks clearly established levels of decision-making authority.

Readiness enablers

- Managers have sufficient training to enable baseline understanding of sales, production, and finance. Managers know the context and meaning of basic terms, measurements, dependencies, timelines, and responsibilities.
- Communications are clear and open across groups and departments.
- Reports, measurements, and metrics are shared across an organization.
- My organization has an S&OP executive sponsor.
- I have a clear understanding of why I should participate in the S&OP process.
- S&OP responsibilities are clearly defined, understood, and formalized for every stakeholder.

SEVEN SORRY SUPPOSITIONS ABOUT S&OP



Tom Wallace is a writer and educator specializing in S&OP. Learn more at tfwallace.com.

- 1** We don't need S&OP in our department. That's a "supply chain thing."

Reality: Yes, it is a supply chain thing ... and a sales and marketing thing; and an operations thing; and a finance thing; and new product and development thing; and, last but not least, it's a top management thing. S&OP is a company-wide, collaborative, decision-making process, which reaches up to the top levels of a business.
- 2** We can't use S&OP because we don't have any manufacturing. We use contract manufacturers solely.

Reality: S&OP doesn't care who owns the factory. Companies that outsource heavily probably need it more, because they have less control over the supply side of the business. S&OP also is used in banks, retail companies, and engineering organizations.
- 3** We'll never get S&OP to work because we don't have teamwork.

Reality: You've got it backwards. S&OP doesn't require teamwork before you get started. S&OP engenders teamwork once it's operating properly. It enables people to view the business holistically. When S&OP is implemented and there's not improved teamwork, it means just one thing: You didn't do it right.
- 4** We don't need S&OP; we're doing lean manufacturing.

Reality: S&OP and lean are two very different things. S&OP is a medium-to-long term planning tool that provides visibility into the future, thereby avoiding surprises when demand shifts—up or down. People who know both S&OP and lean say "they work best when they work together."
- 5** S&OP is too rigid. It won't work for us because our business changes too quickly.

Reality: S&OP is all about change. It provides a "window into the future," so that companies can see problems months ahead of time, take corrective action, and prevent potential problems.
- 6** We're a large company. I think we're too big for S&OP.

Reality: Are you bigger than Microsoft, for example? Or bigger than Procter & Gamble? These companies and others use S&OP successfully. In these companies, the results from the operating units S&OP processes are rolled up, communicated to the corporate chief executive officer, and form a key component of the expected earnings of a corporation.
- 7** S&OP takes too long to implement. We'd love to do it now, but we're going to wait until the economy improves.

Reality: You can implement the basics in six months or less. That should be soon enough to use S&OP to help you manage during a strong economic upturn when it comes. If the upturn comes later, S&OP can help you manage the ups and down that we've been experiencing lately.

S&OP SURVEY RESULTS SUMMARY

APICS and the Institute of Business Forecasting and Planning (IBF) set out to uncover what's really going on with sales and operations planning (S&OP) in organizations. A survey was crafted to explore S&OP maturity, the level of agreement necessary to reach maturity in the S&OP process, and possible causes of difficulties in implementation. The survey asked participants to provide opinions on S&OP recommendations.

Nearly 15,000 randomly selected supply chain and operations management professionals were invited to participate in the survey. The survey results reflect an approximately 5 percent margin of error at a 95 percent confidence interval. Overall, two out of three participants practice S&OP at their current organizations and the findings were based on the responses of these professionals.

The majority of participants (46 percent) classify themselves as having overcome challenges to experience significant success. These S&OP users classify the core S&OP efforts as working, and are currently improving the process and evaluating ways to increase the value of those efforts.

While there are signs of overall S&OP success, 36 percent of respondents indicated they have stalled or are slowly moving forward with their S&OP efforts. These participants are seeing some benefit, but they know they can achieve more.

The specific findings show that S&OP remains a demanding process. Professionals who have experienced a smooth S&OP implementation and those whose S&OP efforts have not delivered desired results agree the following points are best practices for successful S&OP.

- The ideal S&OP process must measure total future demand and revenue potential compared to the production plan. (A bottom-up forecast of both units and price compared to production plans is essential.) Analysis of demand and production plans is necessary to avoid the lure of "easy," demand-only S&OP.
- Alignment on the importance of the S&OP process must be established across departments to ensure stakeholders understand the relevance of aggregate numbers and the balance of supply and demand. S&OP needs to be viewed as invaluable and not as just another monthly meeting or spreadsheet.
- The S&OP process demands clear goals, strategy, rewards, governance, forecasting, and association between planning and execution. If these are not achievable due to current organizational practice, S&OP will not advance effectively.
- Preliminary meetings expose areas of risk and develop scenarios for adjustment. This preprocess provides solutions for management or can be used for consideration at a formal S&OP meeting.
- S&OP reporting must have fair and reliable measurements, parameters, and audits. These must be consistent, meaningful, and timely for all stakeholders.
- A well-respected S&OP champion maintains the S&OP process, anticipates and addresses concerns, and demonstrates the value of improving S&OP implementation.
- S&OP relies on professionals' soft skills, such as communication that addresses expectations. Team and organizational conduct matter more than tools and systems.
- Practice makes perfect. Those professionals that experience success in S&OP learn from unmet expectations and assumptions that did not work.

The survey shows that successful S&OP takes significant effort. While best practices have been identified, the survey results indicate that considerable innovation and process improvements are required to support and maintain successful S&OP.

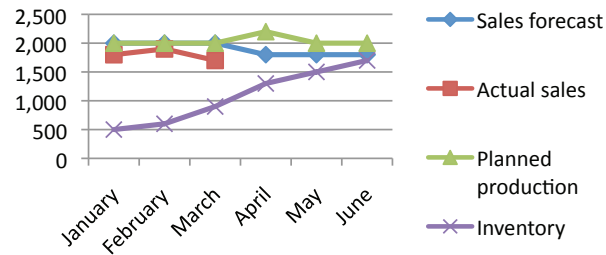
DISCOVER THE POWER OF S&OP WITH THIS SCENARIO

The following is a scenario from Bikemax, a fictional bike manufacturer. Bikemax works under typical production and financial constraints. Production cannot change by more than 100–200 units per month. The finance team does not want to finance more than 500 units of inventory.

Now examine the numbers after the implementation of S&OP. This is an example of the improvement expected when the process is incorporated within an organization.

Before S&OP

At the end of Q1, the sales team suspects promotion of the new product line is reducing sales of the main product family. Production does not know this. Inventory will soar as production matches old sales forecasts, not actual demand. Stakeholders don't give recommendations to senior management. The production and finance team will face tough inventory challenges deemed "not my fault" by the sales team.

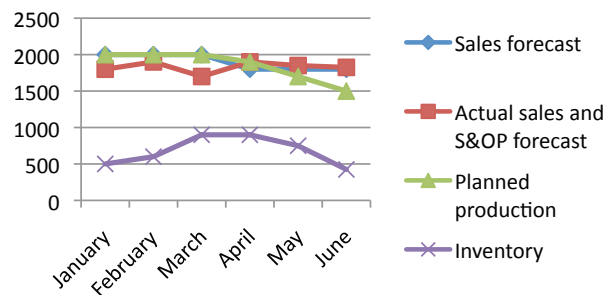


	January	February	March	April	May	June
Sales forecast	2,000	2,000	2,000	2,200	2,000	2,000
Actual sales and S&OP forecast	1,800	1,900	1,700	1,800	1,800	1,800
Planned production	2,000	2,000	2,000	2,200	2,000	2,000
Ending inventory	500	600	900	1,300	1,500	1,700

After S&OP

At the end of Q1, the sales team suspects promotion of the new product line is reducing the sales of the main product family. S&OP makes clear that shrinking sales will continue. Everyone realizes supply and demand are imbalanced. The S&OP process provides the following recommendations to senior management:

- Ramp down production of the main product family in Q2.
- Reduce promotion of the new product line in Q2.
- Budget for temporary increases of inventory from February through May.



	January	February	March	April	May	June
Sales forecast	2,000	2,000	2,000	1,800	1,800	1,800
Actual sales and S&OP forecast	1,800	1,900	1,700	1,900	1,850	1,825
Planned production	2,000	2,000	2,000	1,900	1,700	1,500
Ending inventory	500	600	900	900	750	425

By Tom Wallace

Do You Know Its Worth?

Helping your people see the true value of S&OP

Editor's note: The author prefers the term “executive sales and operations planning” to refer to planning that directly involves top management, as opposed to planning that encompasses mix issues, which are more detailed. Because APICS does not delineate these differences, this article will use “sales and operations planning” (S&OP) to refer to that executive-level, volume-planning process.

Users rarely perform a cost-benefit analysis (CBA) prior to beginning an S&OP effort—mainly because the cost of implementation is so low. However, this makes it impossible to calculate performance improvements following implementation because there is no CBA against which to compare them. The result is a relative lack of information on what S&OP costs and what it can accomplish.

Over the past year, I've noticed more and more questions and conversations about cost, return on investment, the payback period, and so forth. It seems things are beginning to change.

The best-practices project

In order to analyze the experiences of companies using S&OP effectively, my colleagues and I have studied 13 organizations. These were known to us as businesses operating S&OP well (an admittedly nonrandom sample). We obtained data on benefits the companies received as a result of their S&OP. (See Figure 1.) All organizations participating are listed, with the exception of Unicorn, a fictitious name to disguise one business at its request.

As you can see, almost all of these businesses experienced heightened

customer service, better inventory levels, and enhanced productivity. (See Figure 2.) Note that the numbers were not collected in a statistically rigorous manner, nor were they verified. For example, if someone said, “We improved our delivery performance by 22 percent,” it was recorded as such. Also, in this era of six sigma, lean, and more, it can be difficult to identify how much of an improvement results from which initiative. Many tools can help bring about benefits.

Soft benefits are difficult or impossible to quantify. However, many respondents point out that the soft benefits are equal, or perhaps greater, in importance to the hard benefits. Specifically, organizations noted the following advantages.

Enhanced teamwork. The S&OP process was first employed in the late 1970s at Abbott Laboratories' U. S. pharmaceutical division. Employees there called it “game planning,” and the president of the division said it would enable his staff to “view the business through [his] glasses.” It became clear that seeing other peoples' sides of things and working together to solve problems builds teamwork. This is true for top management, middle management, and other levels. If you've implemented S&OP and teamwork hasn't visibly improved, you didn't implement it very well.

Embedded communications. No longer does David need to remember to tell Betty that the new product launch will be delayed by six weeks so that she can modify her earnings projections. These kinds of communications are embedded within the five-step monthly S&OP cycle.

Smarter decisions and financial plans. Some people wonder how S&OP can enable superior decision making and financial planning with less effort. It's simple: Better processes yield better results.

More focused accountability and greater control. Comparing actual results to the plan is an inherent part of the monthly process. Thus, S&OP results in a higher degree of accountability, organization, and responsibility.

A window into the future. With S&OP, people can see potential issues farther into the future than ever before—early enough to take action and prevent problems.

Implementation costs

How much does a company have to shell out in advance to make S&OP work? It depends on how much you want to pay. Want to spend seven figures? You can do that and be successful. Want to spend next to nothing? You can do *that* and be successful.



If you've implemented S&OP and teamwork hasn't visibly improved, you didn't implement it very well.

Let's first look at the various kinds of costs using a procedure similar to ABC classification. Derived from Pareto's Law, it addresses the relevant importance of each category as follows:

- C = computer (mainly software)
- B = data (spreadsheets, graphs, and feeds)
- A = people (knowledge, understanding, and willingness to change)

Note that I'm including only out-of-pocket costs and am excluding the imputed costs of people's time.

In ABC classification, the C items are essential but of less overall importance than the A and B items. So it is with this slightly altered form. A high percentage of successful S&OP-using companies employ spreadsheet software. However, the onset of a number of superb S&OP-specific software packages is making an impact. Some companies switch after they have begun successfully operating S&OP in order to achieve additional capabilities and easier processes.

Elements that fall in the data category enable users to load into S&OP the relevant information from enterprise resources planning (ERP) systems, customer relationship management (CRM) systems, legacy systems, and so on. B

items help people acquire missing data needed for S&OP and ensure data are valid and will support decision making at the highest levels in the organization. In addition, these items enable workers to develop methods for displaying S&OP information, such as graphs, spreadsheets, charts, and dashboards.

This work typically is done in-house by a mix of people from information technology and operating departments; hence, it carries no out-of-pocket costs. However, some elements can be contracted to outside consultants, significantly increasing the level of expenditure.

Your success with S&OP largely will depend on how well you do with the A items. The mindsets of employees at every level of the organization are vital—and this makes sense, as S&OP deals with real people making decisions. The people category breaks out into two elements: education and outside consulting support.

Regarding the former element, your people will need to learn how to answer the following questions:

- What is S&OP all about?
- Have any companies like ours made it work?

- If we do this, what will our company look like a year from now?
- What's in it for me?

Those staff members who will be hands-on with S&OP—up to and including the leader of the business—should receive this education and training. In a company of average size, that's probably only a few dozen employees. Employees can learn inside or outside the company.

Outside education is the more expensive option, so many businesses end up sending just a few people who then return and hold inside sessions to share the knowledge. If you use only inside education and training, then you have another decision to make: Should you use an outside S&OP expert, or equip one of your own people to become the expert and lead internal sessions? Obviously, there are price variances here, as well.

Alternatively, video-based education can be effective and costs relatively little. Video also has the advantage of being available to people throughout the entire implementation and afterward as a reference tool.

Another option is to use books only. Give employees a copy of a book, and tell them to read it. However, unless

Figure 1: Companies using S&OP

Companies	Products	Approximate annual sales	Approximate number of employees
AGFA U.S.	Film and related equipment	\$1.4 billion	1,000
Amcor	Packaging	\$50 million	220
Cast-Fab	Castings and fabrications	\$37 million	265
Coca-Cola France	Soft drinks and juices	Not available	220
Danfoss	Compressors	\$230 million	1,100
Eclipse	Industrial equipment	\$90 million	500
Eli Lilly	Pharmaceuticals	\$12 billion	43,000
EMS	Clad metals	\$100 million	400
Interbake Foods	Cookies and crackers	\$340 million	1,700
Norse Dairy Systems	Production equipment	Not available	Not available
PYOSA S.A.	Pigments and dyes	\$35 million	300
Scotts	Lawn and garden products	\$2 billion	4,000
Unicorn	Medical devices and supplies	\$750 million	4,000

Figure 2: Benefits realized

Benefit	Percent change range	Percent change median
On-time delivery	Plus 10–40 percent	25 percent
Inventory levels	Minus 12–70 percent	41 percent
Manufacturing downtime	Minus 20–50 percent	35 percent
Plant efficiency	Plus 2–33 percent	17 percent
Transportation costs	Minus 5–30 percent	17 percent

your business is truly exceptional, that won't be sufficient at bringing about the necessary behavior change. Books are an important supplement, but rarely are enough on their own.

Costs and benefits

S&OP enables better processes, simulation capabilities, and integration of financials and operating data. When employed properly, users enjoy easier data download each month from ERP, CRM, and various legacy systems.

You have many different choices about how to implement and use S&OP, and your CBA will reflect your ultimate decisions. The important thing is to be aware of what S&OP costs and what it achieves.

Tom Wallace is a writer and educator specializing in S&OP. He developed the Education Kit for Sales and Operations Planning and is co-author of *Sales & Operations Planning: The How-To Handbook*. Wallace may be contacted at wallacetf@gmail.com.

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Less



ons

BY JOHN R. DOUGHERTY

from the Pros

*How to win
with sales and
operations
planning*

When we were little kids, we always looked to the big kids—our siblings, other kids in the neighborhood—as guides for what was fun and cool. As we grew and changed, so did our guides, becoming school chums, cousins, and kids from other neighborhoods. As adults we learned that it's not always the older, flashier people who make the best role models. There's a need for substance as well as style. These life lessons are true in the business world, as well.

Best practice model companies aren't just the biggest, oldest, and most famous organizations. They are companies with valuable, proven experiences, processes, or behaviors. Leaders at these organizations have figured out how to get the most out of the latest "hot" management approaches. And they've done it in an institutionalized, sustainable manner that produces measurable business results.

S&OP: What's in a name?

As in any field, over time, the use of terms and acronyms gets sloppy. Some people will expand a term to include new meanings beyond the scope of the original concept. Others may narrow a term to focus on one particular aspect of its original meaning.

For example, today, some see sales and operations planning (S&OP) as primarily focused on maintaining and improving forecast accuracy; this narrows the meaning. Others are beginning to use it in an expanded sense to include the functions of tactical market planning, customer order management, master scheduling, and detailed weekly planning. Still others have tried to coin new terms to clarify communication. Some of these new terms include "enterprise S&OP"; "executive S&OP"; "integrated business management"; and "sales, inventory, and operations planning."

The following are three very good reasons for sticking with the original term "sales and operations planning":

- All of the new terms have essentially the same meaning as the original, traditional term. Using a new term to

describe the process encourages others to use the old term incorrectly.

- Professionals at most best practice companies use the traditional terminology and haven't found a need to redefine (narrow or expand) the term or invent a new one.
- The simplest way to communicate (and the one consistent with the knowledge of this over-20-year-old process) is to continue to use the term that has been used for most of those 20 years.

A refresher

S&OP is a business process that gives managers control based on a current knowledge of the market and the company's internal capabilities, while fostering effective and timely cross-functional communication and decision making.

It works by monitoring and managing demand and supply at a family, volume level. S&OP acts as the linchpin to pull together and reconcile other separate and distinct, yet connected, business processes, which include strategic planning, sales and marketing planning, financial planning, detailed sales forecasting, customer order management, master production scheduling, distribution resource planning, and rough-cut capacity planning.

S&OP typically is a five-step monthly process comprised of data gathering and review, demand planning, supply planning, partnership meetings, and executive meetings. The end result, when the steps are done properly, is excellent customer service, well-managed inventories, and properly used resources. S&OP ensures institutionalized communications so that workers throughout the entire organization are informed of the latest business decisions related to supply, demand, inventory, and customer backlogs.

Doing it right

S&OP can be used successfully in a wide variety of business environments. Take, for example, Coca-Cola Midi (CCM), a regional manufacturing division of Coca-Cola

located in France. The manufacturer produces soft drink concentrates and juice beverage bases for Europe, Asia, and Africa markets. CCM manages more than 700 stockkeeping units (SKUs), encompassing 79,000 tons of product and representing hundreds of millions of sales dollars. The division employs 220 direct workers.

At CCM, 72 percent of its product volume is completely produced and handled by third-party fruit juice processors. Juices are delivered from the processors directly to Coca-Cola bottling operations, third-party packers, and other customer locations. For these products, CCM provides sourcing, specialized analytical testing of juice samples prior to shipment, and logistics coordination services.

Enterprise resources planning (ERP) and S&OP were implemented at CCM when the plant was started in 1991. CCM leaders see S&OP as the backbone for all planning, manufacturing, and supply chain activities. This especially is true of their extensive supply chain coordination efforts, which aim to synchronize the flow of product from all their suppliers and manufacturing partners to all the canning and bottling locations that use their product.

In fact, there are monthly operational meetings with suppliers, which occur after the final executive S&OP meeting. Face-to-face meetings cover four suppliers representing 71 percent of total juice volume. Volume changes are implemented based on agreed-upon time limits within select time frames. These meetings also address

- inventory and demand management issues
- product in quality assurance quarantine
- service defect rates and corrective actions
- planned and requested improvements.

CCM's monthly S&OP process actually begins 10 days before the month end, when preliminary demand data are updated based on the requirements from sister Coca-Cola divisions. These data are amended over the next two weeks as actual results occur. This enables the whole S&OP process to be completed four days into the new month.

S&OP facilitates disciplined and formalized communications across the company and among suppliers, partners, and customers. It also has made possible a transition from a low-mix, high-volume environment to a high-mix, medium-volume environment. Continuous improvements in customer service, inventory management, obsolete products, and freight costs also resulted from S&OP, with which the manufacturer coordinated improvement efforts.

Healthy S&OP for medical products

Another example company has its headquarters and four plants in the United States and one plant in Europe. It maintains extensive sales and distribution organizations in North America, Europe, Japan, and other areas of the world. This company generates more than \$750 million in sales of

medical devices and consumable products annually.

With more than 4,000 employees, the company is the result of a merger of five divisions of other large companies into one new integrated business. Each of these five divisions came with pre-existing ERP and S&OP processes.

As a result, there were extensive efforts in the company to standardize and synchronize each S&OP process into one common companywide process. Team members representing

all five businesses and all functions analyzed the best practices from each of the five pre-existing businesses. Then, they reconciled and incorporated the "best of the best" into one companywide process design, ensuring consistent practices and easily integrated data throughout the organization.

S&OP was seen as the "glue" to bring the five different businesses together. Now, it is a vital management communication and decision-making process that supports managers' approach to running multiple business lines in regions across the globe.



S&OP was seen as the "glue" to bring the five different businesses together.

Matrix management

At the medical device manufacturer, management processes have evolved and improved based on an effective, cross-functional approach. To keep the appropriate individuals focused on their respective product issues, there are 10 S&OP partnership meetings in which participants review all the supply, demand, and inventory data covering 27 product lines or categories. Many of these meetings are held consecutively on the same day. They last three-to-six hours and have director-level participants.

Five executive S&OP meetings (typically three hours long) are conducted by product teams for each of the five business lines. The business lines encompass all products, including consumables, supplies, and medical devices. However, unlike many companies—in which the business leader responsible for the executive S&OP meeting has the title of general manager, chief executive officer, or chief operating officer—the example company doesn't have any leaders heading up the process. Instead, each team is comprised of a cross-functional group of vice presidents with a designated facilitator—sometimes a marketing professional and other times an operations professional.

Generally, the teams' members reach consensus on decisions. In those rare cases where this doesn't happen, the issues are forwarded to corporate headquarters for final resolution.

Though difficult, this management approach works because the participants are fully committed to team principles, values, and standards of behavior. Plus, there is a well-defined S&OP process to guide the teams' communications and decision making.

Leaders at the company also have put forth vigorous efforts to implement lean manufacturing for shorter lead times, lower costs, and improved flexibility. Lean manufac-

turing has streamlined, simplified, and shortened the S&OP process. In turn, S&OP governs the lean manufacturing processes and provides the medium- to long-term planning view that is missing in a lean execution system. S&OP targets areas for lean manufacturing implementation and helps professionals monitor the progress of those projects.

Lean and S&OP together have driven customer service levels above 98 percent and helped reduce inventory by more than \$100 million over the past years. Supply chain and customer lead times have been drastically reduced, with an increase in flexibility throughout the supply chain.

The right medicine

Eli Lilly & Company boasts more than \$14 billion in sales, with 37,000 employees and inventories of \$1.7 billion. The company's 65 products are sold under 8,000 different SKUs in 146 countries through 130 sales affiliate divisions. Each sales affiliate maintains forecasts and inventory replenishment orders over a 24-month horizon. These demand planning data are summarized into four regional areas on a monthly basis and reviewed and approved by senior sales and marketing managers.

Eli Lilly has 22 global manufacturing sites in 12 countries, grouped into four global networks, each with different manufacturing technology and product types. Many of the firm's 80 third-party manufacturers in 33 different countries are managed as part of two hubs in North America and Europe, each with its own S&OP processes. The other third-party manufacturers are incorporated into the supply planning processes of the local plant site that coordinates their activities.

A Deeper Dive into S&OP

Sales and operations planning (S&OP) can tie it all together, linking strategy with execution across an organization's functional areas. Take the next step in your S&OP education by registering for the Best of the Best Sales and Operations Planning Conference, jointly presented by APICS and the Institute for Business Forecasting, June 19-20, 2008, at the Renaissance Chicago O'Hare Suites Hotel in Chicago, Illinois. Educational sessions will cover topics such as

- tying financial planning to operational planning
- managing change and commitment to the S&OP process
- the basics of S&OP processes
- how to globalize S&OP
- industry case studies of S&OP implementations.

Whether you're an experienced S&OP practitioner or just beginning the journey, the Best of the Best Sales and Operations Planning Conference will provide you with practical education that can be applied in a wide range of industry sectors.

Visit www.apics.org for more information.

A corporate supply chain organization guides the planning processes that include manufacturing resource planning (MRP II) or ERP, distribution resource planning, and an advanced planning system used to efficiently schedule manufacturing sites to avoid overloads and minimize inventories and lead times.

This complex supply chain requires extensive efforts in the area of global supply chain management, with S&OP guiding the demand and supply management efforts. Also, S&OP provides a forum to manage, improve, and communicate change effectively.


Much of Eli Lilly's business success can be attributed to its productive new product development pipeline. It has managed 10 new products in three years, five times the industry average. As one manager says, "The value of S&OP at Lilly has been the ability to launch all of our new products in a very complex environment without adding significant cost, resources, or inventories. We have managed a strong customer service performance metric, while controlling our growth in assets."

S&OP provides the vision, communication, and decision-making mechanism to carefully plan and execute the launch of the company's new products across multiple markets in a time-phased fashion. It also has been a major planning method for making decisions on products coming off patent, which often are outsourced to third-party manufacturers. This strategy frees capacity in Eli Lilly plants to produce new products.

With its processes in place, Eli Lilly has maintained customer service close to 98 percent, while reducing inventory by \$500 million, despite a rapidly growing product portfolio.

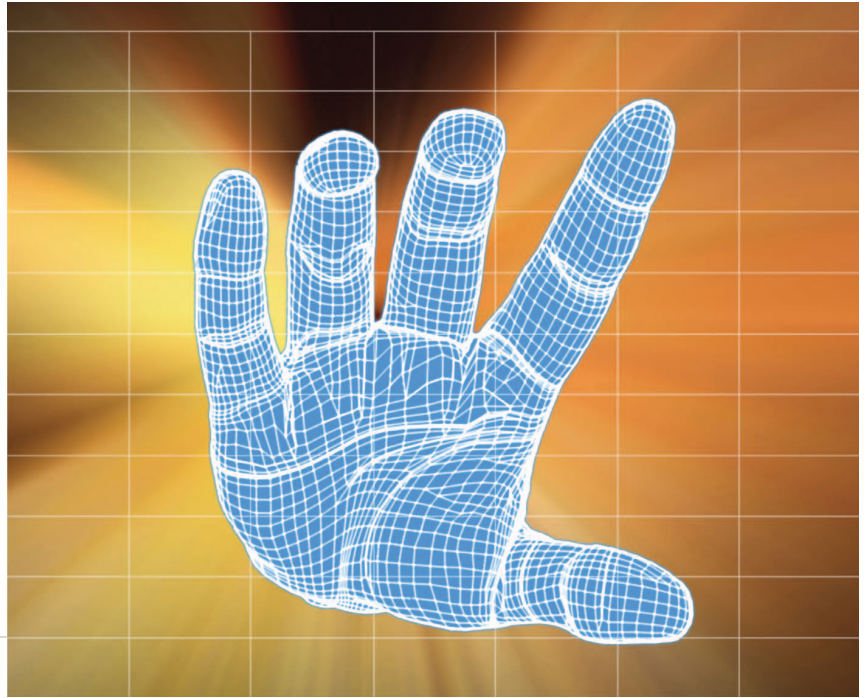
S&OP can lead to improvements in customer service, inventory management, and cost management, as well as more effective implementation of other business processes. Most importantly, customer relationships can be enhanced with better visibility and planning.

The keys to success with S&OP are consistent: top management leadership, cross-functional participation, and teamwork. Additionally, accurate information in standard display formats and performance measurements or key process indicators are also important. The last critical ingredients are education and training in a step-by-step implementation process.

Executives at best practice companies agree: S&OP means better control. It harnesses the power of knowledge, encourages updated vision, and provides the basis for effective cross-functional communication and decision-making processes. 

John R. Dougherty is a founding senior partner of Partners for Excellence. With Christopher Gray, he authored the book, Sales & Operations Planning—Best Practices, Lessons Learned from Worldwide Companies. He may be contacted at john@jrd1@partnersforexcellence.com.

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Reaching for Next-Generation S&OP

Take hold of operational excellence

By Gregory L. Schlegel, CPIM, Jonah, and Peter W. Murray, CIRM

Sales and operations planning (S&OP) lies at the center of operations. It is where disparate functional areas convene, team members achieve consensus, and corporate policies are operationalized. However, even with significant advancement over the last 30 years, S&OP processes continue to be identified by many business leaders as an opportunity for improvement.

According to AMR Research, some key concerns with current S&OP processes include the following:

- S&OP tends to treat all customers the same and therefore omits important factors such as the cost of customer service and certain operational strategies.
- An uncertain and variable S&OP plan produces unanticipated deviations during live operations.
- The S&OP process normally doesn't quantify or qualify risk or support scenario planning with any statistical rigor.

These and many other new drivers are forcing operations and supply chain management professionals to look at S&OP in a different light. It's time to take S&OP to the next level.

It's time to take S&OP to the next level.

Probabilistic planning is one technique to address global supply chain complexity. This process is supported by stochastic demand management and dynamic inventory planning. To understand how these approaches affect S&OP operational excellence, first consider the following definitions from the *APICS Dictionary*.

- Stochastic models are those in which “uncertainty is explicitly considered in the analysis.”
- Probabilistic demand models are “statistical procedures that represent the uncertainty of demand by a set of possible outcomes ... and that suggest inventory management strategies under probabilistic demands.”

The methodologies are not new to academia, pharmaceuticals, health care, Wall Street, or finance. But they most certainly are new to supply chain—and here's why: Stochastic optimization methods are algorithms that incorporate probabilistic elements either in the problem data or the algorithm itself through random parameter values. This concept contrasts with the deterministic optimization methods with which most operations and supply chain managers are familiar.

Specifically, deterministic optimization involves values of the objective function that are assumed to be exact. Furthermore, the computation is completely determined by the values sampled or observed. Linear programming, integer programming, the simplex method, time-series analysis, and regression models are some examples.

With that said, let's profile the “what, why, and how” of next-generation S&OP scenario planning.

Scenario planning starts with creating a flow model of the enterprise. (See Figure 1.) The user then populates the model with base case data from an enterprise resources planning (ERP) system, identifying the historical behavior and uncertainty of all relevant factors. These include lead times, capacities, demand levels, production, inventory, and more.

The next step is developing the scenarios and their potential probability of occurrence. The design of experiments (DOE) should be defined relative to each variable in the model in terms of its range to ensure statistically significant outcomes. Discrete event simulations are run across the entire enterprise and operational variables, followed by a review of the outcomes and their statistical significance. Outcomes normally will take the shape of histograms with confidence intervals, probabilities of occurrence, and more.

This continuous perturbation can continue until the outcomes are considered statistically significant via the DOE. The final step is to develop a risk-response plan for the scenarios deemed critical to the enterprise covering the tactical S&OP horizon.

Figure 1: Next-generation S&OP scenario planning vision

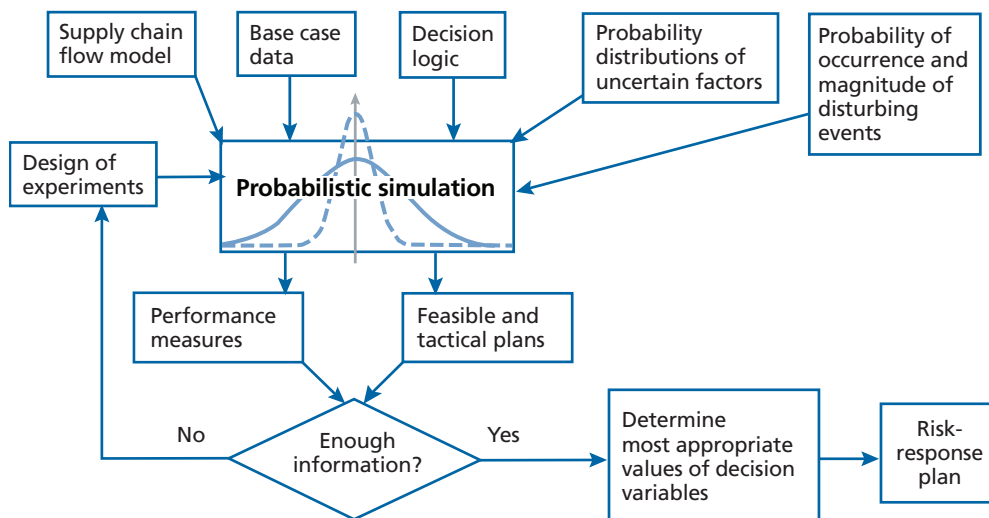
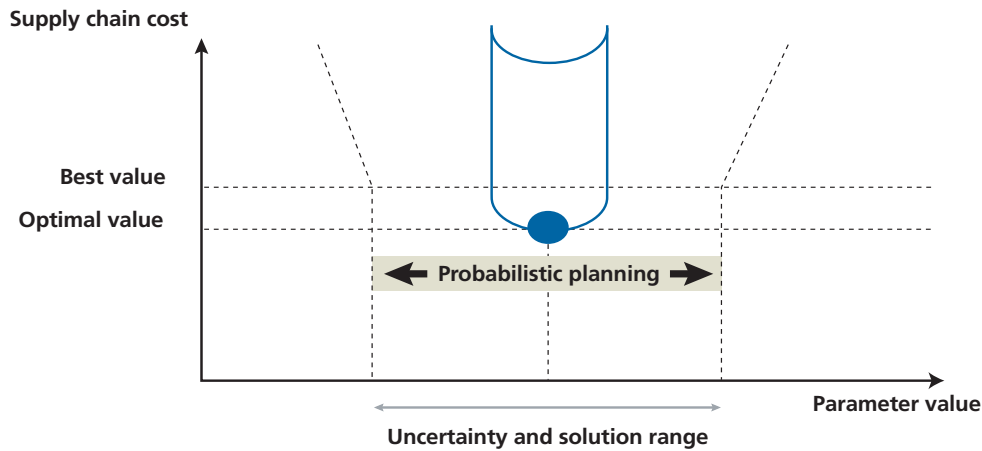


Figure 2: Deterministic versus probabilistic planning



Now, let's explore why it's beneficial to use a probabilistic approach to scenario planning. Consider Figure 2, a pictorial view of two approaches: the familiar deterministic method and a probabilistic or stochastic method. Supply chain costs are on the Y axis—along with a best value and optimal value. The X axis shows the range of uncertainty for variables within the scenarios. This example reveals that a deterministic approach attempts to provide one optimal and very narrow solution with little or no influence from the effects of uncertainty.

With a probabilistic approach—one that incorporates risk, uncertainty, and probabilities—users experience a near-optimal solution, which stays valid across a broader range of variable values at a predictable cost. In scenario planning, this is much more appealing and can be profiled concisely for review.

With these outcomes resolved, it's now time to move into the last phase of scenario planning. Here, users apply predictive analytics to develop a risk-response plan. Interestingly, the oil and gas industries have been using this approach for more than 30 years in order to manage offshore rigs and platforms in hostile environments, which are subject to severe weather and operational risks. Other industries, such as insurance and finance, use a probabilistic approach to support risk management in their own S&OP forums.

A response plan normally has four elements:

1. Identify the known risks.
2. Identify the owners of the risks.
3. Articulate the risk responses.
4. Articulate the measures of successful mitigation.

Spending time, resources, and energy on such efforts can bring about numerous benefits. The S&OP team members are better able to main-

tain a solid corporate reputation and brand. In addition, a good risk-response plan often leads to solid financial ratings with agencies and positive analyst commentary as a publicly held company. The ability to reduce the cost of capital through diligent risk mitigation tactics and management of enterprisewide risk strategies also is significant.

Most notably, however, a solid risk-response plan enables professionals to identify and effectively manage uncertainty, complexity, and global risk—a true competitive edge.

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Editor's note: Authors Schlegel and Murray will present an interactive educational session, *Next-Generation Sales and Operations Planning Simulation*, at the 2010 APICS International Conference & Expo. The session will enable participants to better understand uncertainty, complexity, and risk in the global supply chain. In addition, the presenters will detail the process of developing an enterprisewide risk management framework and corporate risk-response plans.

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Reconciling Perspectives

Exploring the central aspects of demand alignment

I've recently been involved in a search for new demand planning software. While I'm excited about the technology's capabilities, the process of demand alignment—a key step in any sales and operations planning (S&OP) process—requires more than just generating models and gathering data. What's missing from these solutions is something driven by process: a reconciliation of different perspectives and, most importantly, their inputs.

The objectives of demand alignment in S&OP include the following:

1. Deliver consensus on demand across the 18-to-24-month planning horizon. This means using one set of numbers to run the business.
2. Develop consensus around other probable demand scenarios. The one thing everyone knows about a forecast is that it's always wrong; so it's essential to agree on where S&OP team members could be wrong—and how wrong they might be.
3. Develop proactive contingency plans based on areas of risk and opportunity.

Because the outputs of demand alignment serve as the primary inputs for each subsequent step in S&OP, meeting these objectives is critical. The "garbage in, garbage out" rule applies: If supply professionals are given unrealistic demand numbers, their plans will be likewise unrealistic. When this occurs, the results of S&OP won't be held with any real confidence, and the process's value is greatly diminished. The bottom line is that demand alignment objectives have to be met without exception.

Key factors for success

It all starts with S&OP design and implementation. The purpose of

If supply professionals are given unrealistic demand numbers, their plans will be likewise unrealistic.



demand alignment is to align demand perspectives, so it should be no surprise that those perspectives have to be part of S&OP design from the start.

I work in the consumer packaged goods industry. Here, the critical perspectives requiring alignment are those of the consumer (represented by the marketing department) and the retailers (represented by the sales and customer service departments). Early in my company's S&OP design, my team spent a significant amount of time talking about how each of those perspectives would be represented. We asked what are the data points that we want to review each cycle and at what levels—product family, customer, and so on. Before our very first cycle, everyone within the demand alignment process agreed to the design of each demand perspective. This was critical to a healthy discussion.

Demand alignment requires debate. This is the time and place to disagree, voice perspectives, and defend them with data. Just remember to disagree without being disagreeable. If accomplished successfully, the team can deliver a more informed forecast, of which each member holds ownership.

Agree to what you know and what you don't know. While much of the demand alignment discussion needs to be about those factors that can be largely controlled or influenced, it also needs to include dialogue about those issues that can't, such as weather or other macroeconomic factors. Both can drive misalignment between demand perspectives. Demand alignment must take into consideration where these things fall within the consensus model and offer demand scenarios that capture the effects when those factors are planned for—and when they are not.

Figures 1 and 2 offer sample diagrams that may assist you in your S&OP process. Figure 1 illustrates that reconciliation between the bottom-up detail forecast and the volume forecast occurs only within the planning fence. Thus, the remaining discussion should be about the

Figure 1: Bottom-up and volume forecasts

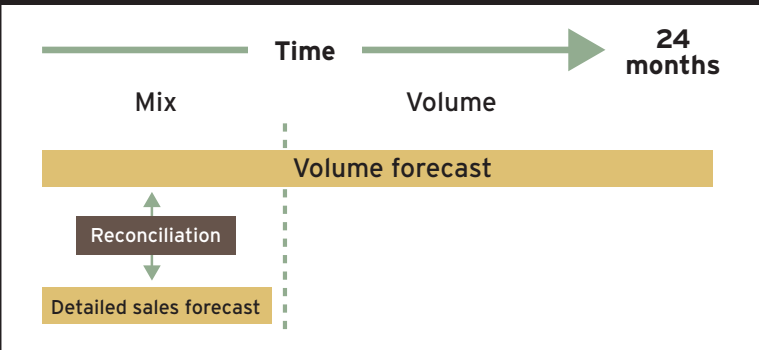
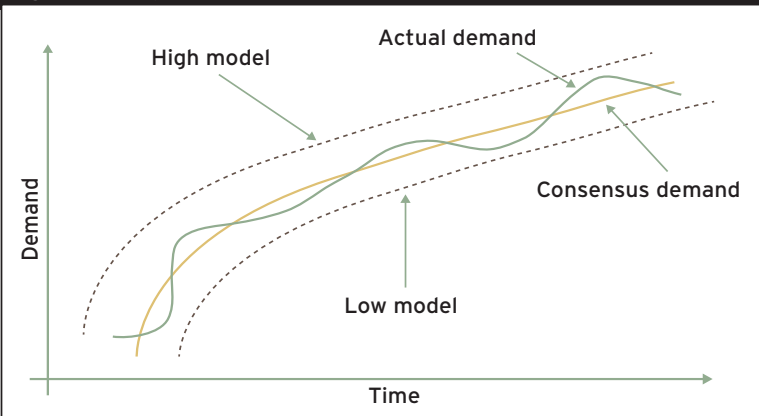


Figure 2: Range of error



volume model inputs and potential error range of that forecast.

Figure 2 shows a range of possible error. Once high and low models have been developed based on extrinsic factors driving the business, the demand team is able to identify that span. Supply plans and risk mitigation discussions now take place based on the possible error.

While each S&OP process is different, running S&OP across several business units has taught me that, when these key pieces are in place, our process is successful. As a team, we are able to take ownership of the demand call and set up the rest of the S&OP cycle for victory. Most importantly, we

proactively communicate where we believe the risk lies within the demand plan and give the supply management and executive teams time to mitigate that risk, if they choose to do so.

Demand alignment is much more than running models and collecting data; it's about reconciling different perspectives and understanding as a team where the risks lie.

Bradley McCollum is the sales and operations planning manager for Jarden Corporation's Leisure and Entertainment Group, which manufactures, markets, and distributes a broad line of consumer products. He may be contacted at bmccollum@jardenbc.com.