

# S&OP in the 21st Century

By Duncan Alexander

**EXECUTIVE SUMMARY** | S&OP/IBP has come a long way since its invention in the 1980s as a process to align sales and manufacturing volumes. But while the early process steps are often well understood, Optimization, which is the process step before the Executive S&OP/IBP meeting, is a mystery to many people. This article explains some of the challenges involved in getting this part of the process right.



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In all the companies where I have worked designing, implementing, and improving S&OP/IBP type processes, there is one process step that is always the most difficult: Optimization. Some call it Integrated Reconciliation, others, Pre-S&OP, Finance Review, or Step 4. We have been calling it Optimization since 2010 because we think that all the other names have an issue: Integrated Reconciliation caused instant confusion when first raised with clients. It made them think that this was only about reconciling different functional views. Pre-S&OP conjures up an image of the S&OP team wading through a deck of product family sales, production, and inventory graphs. Finance Review slants the perspective too far towards the financial numbers, and Step 4 alienates most of the people who are not directly involved in the S&OP/IBP process

because they don't know what it means.

So to save space and ink, I'll call this process Optimization from now on, but it's just a label. If you prefer using the terms Integrated Reconciliation or Pre-S&OP or Finance Review or Step 4, that's fine. There is no one size fits all in S&OP/IBP. This article examines why Optimization is so difficult, and sets out some ideas to prevent it from being seen as the weakest link in S&OP/IBP.

I believe the root cause of the difficulty with Optimization is that it is often the last thing thought about when designing an S&OP/IBP process. Frequently, S&OP/IBP is driven from the bottom up—typically someone in Supply Chain “gets” the need for S&OP/IBP and starts some local improvement activity—perhaps works on SKU portfolio rationalization, forecasting improvements, or developing some

better tools for capacity planning. There will only be limited improvement if there is no overarching S&OP/IBP framework to deliver overall business performance. At StrataBridge, this is what we call left-to-right implementation. Various projects are taken independently, that may or may not be aligned to the organization's strategic direction. Thus, they may not address the biggest weaknesses in the organization. What is needed instead is right-to-left thinking. Start with strategy, think about what capabilities the organization needs in the future, and then identify which projects need to be delivered. Obviously an excellent S&OP/IBP process will be a core capability for the future, but how that capability should be achieved, and what the organization needs to do about some of the obvious weaknesses in areas such as forecasting or supply

planning are significant questions.

Right-to-left thinking is the key here. When designing an S&OP/IBP process, start at the senior leadership level. Talk to them about their strategy and what support is needed to run the business going forward. What are the brand or category priorities? What is the intended growth strategy for the business? What is the future role of innovation? What is the role of IT in supporting the organization's strategy? What is the organization not going to do? What type of decisions do they want to make? What is the appropriate horizon for their decisions? What information do they need to help them make decisions? What decision rights will be delegated? What do they see as the biggest process issues in the business? Do they want a classic five-step process as shown in Figure 1, or a seven-step process to give more emphasis to the portfolio planning and the finance perspectives, or something else?

Working with the leadership team to answer these questions gives the best possible start for an S&OP/IBP process development or improvement project. Now that we know what the leadership team needs, we can continue with the right-to-left approach and design the Optimization process to ensure that it satisfies those needs.

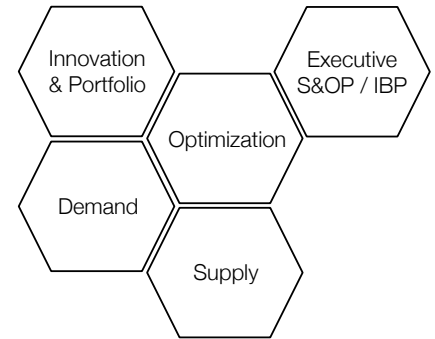
Once we have designed the Optimization process, then, and only then, should we start on improving the earlier steps. For example, it may be that the strategic imperative for the organization as defined by the leadership team is to deliver growth from innovation. In this case, the focus for Optimization should be on ensuring that all functions work together to deliver this objective, and improvement work on early steps should focus on improving the innovation process and ensuring that it is seamlessly integrated with S&OP/IBP.

When do we look at the portfolio of new product development (NPD) projects as a whole? How do we make go/kill/hold decisions? Within the Demand step, how do we forecast NPD projects, and how do these forecasts vary as projects move through the innovation funnel? Within the Supply step, the priorities should be to look at how we run trials, how we prepare the business for product launches, and how we identify our planned supply response for a range of possible launch outcomes.

## THE FUNDAMENTAL DESIGN CHOICE FOR OPTIMIZATION

But before we get sidetracked by design questions relating to the early steps of the process, let's go back to Optimization. The fundamental design choice for the Optimization process is whether it is to be focused on managing delivery of the year-end number or whether it is to have a longer horizon and manage the numbers for two years as well as monitoring business performance and supplying decision support. (Figure 2) The first choice is

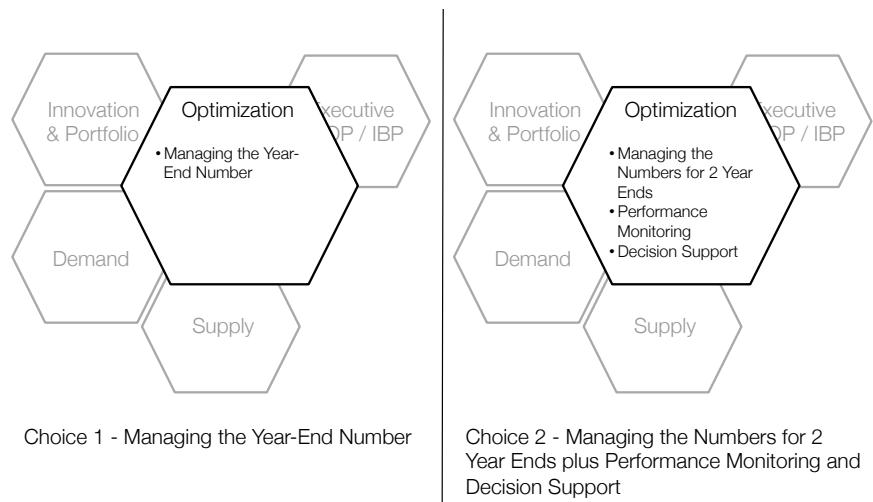
**Figure 1 | Classic Five-Step S&OP/IBP Process**



much simpler: the effort is around agreeing that the latest financial forecast for the organization is based on the real operational assumptions, resolving supply and demand balancing issues, agreeing on what are the risks included in the forecast and the opportunities not included, and identifying and proposing business-wide gap-closing decisions (the assumption is that "commercial" gap closing activities are continually being put forward during the commercial planning phase of the process).

The second option—defining the scope to include business performance monitoring and decision support for Optimization—is a much more com-

**Figure 2 | Choices for the Optimization Process**



plicated process, but in my opinion, it is much more valuable. If you have aspirations to make your S&OP/IBP process strategic rather than operational, then this is the sort of Optimization process you need to be working towards. My article in the *Journal of Business Forecasting's* Spring 2013 issue, "S&OP and Strategy: Building the Bridge and Making the Process Stick," provides more background on this area.

Notice that we do not refer to Optimization as a meeting. While it may well include one or more meetings (not necessarily face to face), in reality it is a process that continues all month leading to the Executive S&OP/IBP meeting, in particular if using the second choice. In a classic five-step process, the first three steps have meetings: in the Demand step, for example, the latest consensus forecast is finalized at a meeting. The focus is on what has changed since the last cycle and what that means for the latest view. In Optimization, however, the team might be working on issues and decisions that were flagged two or more

cycles previously. Problems that come to Optimization tend to be complex, cross-functional, and important. They are very rarely solved in the couple of days between the end of the Supply step and the Executive S&OP/IBP meeting. They require to be worked on during the cycle in parallel with the other steps. Optimization is more process than meeting.

One of the common issues seen in under-performing Optimization teams is that they focus on a meeting where it gets bogged down in trivia. Either the issues under discussion are immaterial or the effort is on producing a massive 80-page "deck," leaving no time for value-added decision support. Issues discussed may not be related to strategy, or only be relevant to one function (and probably, therefore, duplicate discussions being held in the relevant step meeting) or simply are too small for this expensive team. A useful rule of thumb is that if the issue under consideration is not worth at least 1% of the organization's annual turnover or profit, it's too small.

Remember that Optimization teams work on future issues and that future view is based on a forecast that is almost certain to be wrong, perhaps massively so. To compound matters, we then use a wrong forecast to identify gaps against a flawed and out-of-date budget target! Worrying about minor gaps and issues is a waste of time.

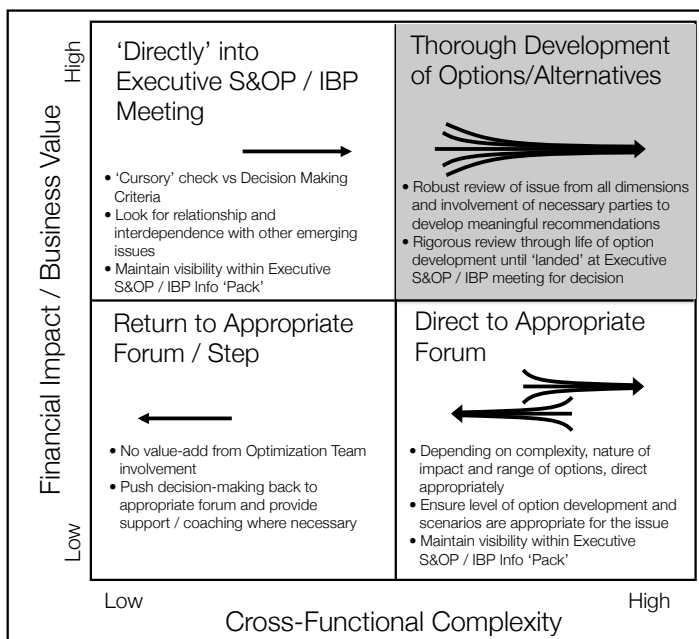
In addition to value, complexity is the other perspective to consider when deciding what the Optimization team should focus on. A simple guide is to question how cross-functional the issue is. If it belongs to one function, then it probably shouldn't sit with the Optimization team. In these cases either the issue should be handled within the relevant step meeting or if it is so large it needs leadership team sign-off, it should be directed straight there, although it should be visible to the Optimization process.

Putting these two perspectives of value and cross-functional complexity together, we can build a simple model to help the Optimization team decide on their priorities. (See Figure 3) Clearly most of their time should be spent in the top right hand corner.

Going back to the two fundamental design choices for the Optimization process, you can see that choice one shown in Figure 2, which is about managing delivery of the year-end number, will likely be focused on a meeting to agree to the number, whereas choice two, the longer two-year horizon and a wider strategic responsibility to include business performance monitoring and decision support, is much more likely to focus on progressing issues and options throughout the month, with several sub-meetings/video-conferences, etc., culminating in the main Optimization meeting.

So, alternative agendas for the main

**Figure 3 | Issue Filtering and Direction**



**Optimization team should spend most of their time here!**

Optimization meeting might look like Figures 4 and 5.

One of the roles of the Optimization team is to prevent the recurrence of any

S&OP/IBP process issues. In addition, reviewing the cycle gives everyone a common understanding of how the assumptions have evolved during the

past few weeks and the emerging business issues, so point 2 is essential in both agendas described in Figures 4 and 5.

## FULL OPTIMIZATION REQUIRES LEADERSHIP TEAM COMMITMENT

Clearly, choice two is much bigger and requires a longer meeting. It also requires much more in-month activity than choice one. So, going for choice two should only be attempted once the leadership team understands what the implications of this choice are, and also recognizes that developing this sort of decision support capability in teams takes time and effort. In effect, we are taking some of the best functional leaders from the business and investing in them to develop their cross-functional business and problem solving skills to help prepare them for future leadership team roles.

Some of the issues that need to be discussed with the leadership team before going down this route include: agreeing on the implications in terms of consulting/coaching support requirements; anticipating the challenge for some leadership team members of having their subordinates raise questions about whether the business is being true to its strategy; ensuring that each leadership team member is prepared to work with its representative on the Optimization team both in advance of and after the optimization meeting; committing to use the Optimization team to solve cross-functional business issues rather than continue with existing ways of working; and, most critically, agreeing that the latest financial forecast for the business will be created through the Optimization team, not created by the finance function in a parallel process.

Whether your choice for optimization

**Figure 4 | Choice One Agenda: Managing the Year-End Number**

- 1) Progress review on outstanding actions
- 2) Review S&OP/IBP process performance in latest cycle\*
- 3) Managing the Year-End Number
  - a. Resolve supply and demand balancing issues requiring cross-functional decisions
  - b. Review draft S&OP/IBP Executive pack that includes:
    - i. Assumptions driving latest forecast, and latest assumption changes
    - ii. Summary of decisions taken in earlier steps but not yet reflected in the numbers
    - iii. Summary of risk in the numbers and opportunities yet to be included
    - iv. Draft Year-End forecasts for P&L, Balance Sheet, and Cash position
  - c. Agree on changes to be made in the assumptions, R&Os, and financial forecasts in final Executive S&OP/IBP pack
  - d. Agree on changes to numbers based on changes in assumptions, agreed at the meeting
- 4) Confirm new action points

\*If the review of the cycle is left to the end of the meeting, it tends to get skipped over.

**Figure 5 | Choice Two Agenda: Managing the Two-Year End Numbers plus Performance Monitoring and Decision Support**

- 1) Progress review of outstanding actions
- 2) Review S&OP/IBP process performance in latest cycle
- 3) Managing the two-year end numbers
  - a. Resolve supply and demand balancing issues requiring cross-functional decisions
  - b. Review draft S&OP/IBP Executive pack that includes:
    - i. Assumptions driving latest forecast and latest assumption changes
    - ii. Summary of decisions taken in earlier steps but not yet reflected in the numbers
    - iii. Summary of risks in the numbers and opportunities yet to be included
    - iv. Draft year-end forecasts for P&L, balance sheet, and cash position for current year and next year
  - c. Agree on changes to be made in assumptions, R&Os, and financial forecasts in final Executive S&OP/IBP pack
  - d. Agree on changes in numbers based on changes in assumptions agreed at the meeting
- 4) Performance Monitoring
  - a. Review strategic dashboard/strategy map
  - b. Review performance by brand/category/customer/sector/market as appropriate for strategy (24-month rolling forward visibility)
  - c. Review external changes
- 5) Decision Support
  - a. Review issues arising, and allocate to appropriate decision-making bodies
  - b. Add issues to business issues tracker/radar chart
  - c. Agree on any re-prioritization of issues and target dates for decision at Executive S&OP/IBP Meeting
  - d. Review progress on current issues and ensure option development and evaluation are on track
  - e. Agree on and finalize issue presentations for this cycle's Executive S&OP/IBP Meeting
- 6) Confirm new action points

is managing delivery of the year-end number or whether it is to have a longer horizon and wider remit to include business performance monitoring and decision making/support, it is imperative that this part of S&OP/IBP has a strong financial goal. Ultimately every business decision has to be expressed in financial terms and without the finance community's ownership or at least strong involvement in this part of the S&OP/IBP process, the process will inevitably end up being led by supply people who focus on volumes.

When Dick Ling, one of the founders of StrataBridge, first invented S&OP, he set it up as a process to drive alignment on the forecast between Sales and Operations people so that early MRP systems would run better. So its history is rooted in manufacturing, not in finance, marketing/innovation, or even sales. It was only during the 1990s and 2000s that we really recognized the need for S&OP/IBP to be a business-wide process stretching well beyond the original S&OP concept (revolutionary and valuable though that was at the time). This history throws light on some of the confusion around S&OP/IBP. For example, many applications vendors position S&OP/IBP as a supply chain planning system, others view it as business-wide planning, and some vendors have modules for both approaches! Our view is that it doesn't matter what you call it, you just need to tailor the basic concept to make it work for your organization. There is no one right way to do S&OP/IBP, let alone one right name for it.

## OPTIMIZATION PROCESS LEADERSHIP

Historically S&OP was a supply chain led process, and the leader of

Optimization was often the supply-step leader because they were the most committed to making the process work, and the focus of Optimization was supply and demand balancing. In the 21st century this is no longer so appropriate. The leader for this step should be a senior finance person. Second choice is a respected leader from the sales or marketing side of the business. Third choice is the S&OP/IBP process leader. This is not to say that there are no good leaders of Optimization drawn from the supply side of the business, but it is usually better to pick from one of the top three choices.

If your choice is a narrow supply focused process, then a supply person may be the right choice. If, on the other hand, you have chosen S&OP/IBP as a business-wide integration process, then we would strongly urge you towards one of the three choices outlined above, and, if at all possible, a finance person. As alluded to previously, one of the killers for a nascent S&OP/IBP process is permitting the finance community to maintain a parallel business forecasting process to S&OP/IBP. Typically called Quarterly Financial Review or Quarterly Latest Estimate, the process tends to be detail driven, budget based, consumes the attention of the business for two months out of every three, and ensures that S&OP/IBP will not have the finance support it needs to make it credible. A core objective for S&OP/IBP is to provide, using a famous phrase from Keynes, a "roughly right, not precisely wrong" monthly re-forecasting process. Since the finance function is critical to making this happen, give them a central role in Optimization.

## OPTIMIZATION TEAM BEHAVIOR

The Optimization team will be

composed of senior managers from across the different functions of your organization. There are several ways to select these people, but be sure to include the leaders of the preceding S&OP/IBP process steps and, as pointed out earlier, financial representation is critical. Although you will have leaders from each function, you are selecting people not because of their functional expertise, but because of their ability to see the wider business picture and work cross-functionally. Optimization fails as a process when the team members seek to defend their functional positions. Explaining the functional position on an issue adds value to the rest of the team as it broadens their overall understanding of the business, but defending its function's position at the expense of "optimizing" the outcome for the whole organization is unacceptable behavior.

Another unacceptable behavior is lack of discipline. S&OP/IBP as a process requires discipline: sticking to the calendar, communicating decisions in a timely manner, and covering the required agendas. It's not a coincidence that the first agenda point on the two agendas for the main Optimization meeting we looked at earlier was "Progress review of outstanding actions." It's good to spot issues far ahead and it's also true that you don't have to fix everything in the current cycle of S&OP/IBP, but you do have to start doing things. Being a member of the Optimization team doesn't mean you just have to turn up at one meeting a month. You may be required to work on issues in sub-groups of the Optimization team during the cycle, together with other experts from the business to explore the issue, understand the root cause, develop alternative scenarios and options, and come up with a recommendation.

The final "watch-out" is about the elephant in the corner. Many

organizations have issues that they do not like to discuss. It might be that Division X has been consistently over-forecasting even with worsening market trends and, despite this forecast bias, the year-end forecast remains unchanged. It is the role of the Optimization team to flag this as a risk to the leadership team, together with some supporting material on the alternative views on the assumptions driving the forecast, and possible options to pursue. Of course, how this is done is important. The divisional president may well believe that their forecast will come good in the last months of the year. There may be different opinions about the probability of success of a new product launch, based on different assumptions about the competitor's activity. So, the issue must be flagged in advance to the leadership team and presented as a "difficult to call" issue. But it needs to be debated because of the risk it carries. Not warning the divisional president that the issue will be discussed, or positioning the issue as one of deliberate over-forecasting will not end well!

## PERFORMANCE MONITORING

Some of the key things to watch out for in performance monitoring are as follows:

**Reviewing the Strategic Dashboard/Strategy Map:** Millions of words have been written about strategy maps, balanced scorecards, strategic dashboards, and supporting KPIs, so there is no need to go into detail here. Suffice it to say that the Optimization process is the perfect place for the organization to maintain a continuous review of whatever version of dashboard they use. Individual steps will be reviewing their own sets of functional KPIs, but Optimization is the first place

where the business inter-dependencies can be seen. So part of the performance review of the Optimization meeting agenda should be focusing on the dashboard, identifying issues, and ensuring that action is being taken to bring the organization back to its strategy. If the strategy says the business will invest an increasing share of revenue in consumer-facing brand advertising rather than in retailer-led promotional activity, but the strategic dashboard says this will not happen under current plans, it is the role of the Optimization team to spot this, ensure that analysis is completed on different potential outcomes, and prepare a presentation on the issue for the leadership team.

**Reviewing Performance:** Here are two things that are worth mentioning. First, how you segment the business (by brand/category/customer/market sector/country, etc.) will be different for every organization. So choose the subdivisions that make most sense for you, and ensure that they are in line with your strategic direction. The second issue is that we should be reviewing future based information, that is, what is likely to happen. S&OP/IBP is the window into the future, not driving looking backwards. So it is predictive analytics we are looking for, not historical data review of past performance (although the historical trends may well be useful predictors). What I like to see on one graph is the historical trend plus the future S&OP/IBP forecasts and the relevant targets.

**Monitoring External Change:** While the whole S&OP/IBP process should be viewed as a process to manage change, organizations often focus on managing internal changes and internal coordination. As an example, consider the internal re-planning required after a simple delay in finalizing the artwork for a new product, so the launch has

to be put back, causing changes in the sales forecast, and materials and production planning. Keeping control of this sort of change was what S&OP/IBP was invented for, which is quite difficult for many organizations. The issue is that when the business is focused on managing internal changes, external changes may be missed (or perhaps only spotted in one part of the organization). It may then be a year or two before the organization really starts to think about the external changes. One solution is to make the Optimization team responsible for continuous monitoring of external changes. To do so, they need to answer three questions every month: first, what has changed; second, is the change important for the organization; and third, what potential responses should be evaluated. It should also be remembered that external changes are not only threats but also at times offer opportunities.

## DECISION SUPPORT

Some of the key things to watch out for in decision support are:

**Reviewing Issues Arising:** Issues that are identified by the Optimization team may come from the S&OP/IBP process performance review, be suggested by the leadership team either during the cycle or at the preceding cycle's leadership team meeting, or be identified during the performance monitoring agenda section. As we see in Figure 3, it is not the job of the Optimization team to deal with every issue in the business! Some issues should be referred to other decision-making forums, and some will already have work underway in which case the Optimization team just needs to keep an eye on interdependencies and progress towards on-time resolution.

**Business Issues Tracker:** One of the core documents for the Optimization



**Figure 6 | Business Issues Tracker**

Issue	Owner	Complexity	P&L Impact	Under Control ?	Time to impact	Strategy Fit	Priority	Progress Status
Pricing Structure	Marketing Director	M	M	✓	9	M	M	Project team set up and making progress
Brand X Gap	Optimization team	H	H	✓	6	H	H	Presenting issues, options and recommendation this cycle
Cost of complexity	Optimization team	H	M	✓	15	M	M	Not started.
Project Lotus	Lotus project team	H	M	✓	5	L	L	Project progressing well.
NPD Process Compliance	Marketing Director	M	L	✘	1	H	H	Stage-gate disciplines poor. Consultants to be appointed to help team on process and behaviours.
Short-life stock	Sales Director	L	L	✘	0	L	L	Actions need to be agreed to clear existing stocks. There is another related issue to be added to radar chart which is how we work cross-functionally to prevent the problem arising again.
Plant line transfers	Optimization team	H	M	✓	6	L	M	Presenting issues, options and recommendation this cycle
Brand Y Innovation	Marketing Director	M	L	✘	4	H	H	NPD project running late and has now encountered trial manufacturing issues. Will now miss launch date. Decision to be made at Board Gate meeting.
Overtime in plant Z	Supply Chain Director	L	L	✓	2	L	L	Will take decision at Supply Planning meeting in two weeks time.

team should be a business issues tracker, supplemented with a radar chart to give a more visual representation of the importance of the issues, and probable timing. Maintained correctly it will give the leadership team visibility over the issues, and build confidence in the whole S&OP/IBP process. A potential layout with some fictional issues is shown in Figure 6. The black rows highlight the two issues that should have special presentations at the next Executive S&OP/IBP meeting.

## OTHER CONSIDERATIONS FOR THE OPTIMIZATION PROCESS

**Data Overload:** Many businesses are drowning in data, but miss insights. In one subsidiary of a major brewer I worked with, there were several balanced scorecards, thousands of SAP reports and BW queries, uncounted spreadsheets and presentations, and

still no one knew what was going on. To quote the CEO: “By the time the Board works out what the problem is, we are too exhausted to do anything about it.”

The Optimization team can make a real difference. By focusing on information, not on data, and by doing an effective issue identification and preparation on this job, they can release their leadership team to make good decisions. There are two key inputs into the Optimization meeting. First, a draft Executive S&OP/IBP pack that is 10 to 15 pages long that include at least the following:

- S&OP/IBP process quality tracker,
- Assumption changes, and decisions taken in each process step that drive the latest forecast,
- Issues arising,
- Decisions taken in each process step that are not yet showing in the numbers,
- Summary of risks in the numbers and opportunities yet to be tapped,
- Latest business forecast including P&L, balance sheet, and cash forecasts,
- External changes and implications

summary,

- Strategic dashboard, and
- Business issues tracker/radar chart highlighting decisions to be taken today.

The second input comprises draft presentations on individual issues that establish the facts, record different opinions, provide root cause analysis, identify and evaluate potential different response options, and recommend a preferred option.

After the main Optimization meeting, these draft inputs are re-worked to include decisions made at the Optimization meeting and additional insights gathered during the meeting. The Executive pack and issue presentations are circulated as pre-reads before the Executive S&OP/IBP meeting, and the Optimization leader will take the leadership team through key parts of the Executive pack at the main S&OP/IBP meeting, and then spend most of the allocated meeting time supported by relevant experts working on each of the issues to reach a clear decision.

### **Handling Requests from the Matrix:**

As organizations grow geographically and become more complex, they frequently set up regional or global specialist functions, such as a central procurement function or a global manufacturing center of excellence. A problem soon appears, which is this: who has the decision rights on questions that affect both the global function and the country organization? Take the case where the global procurement function has just negotiated a new global supply contract for some type of packaging material used in the country-run manufacturing process, and they issue an instruction to all countries to immediately switch to the new global supplier. How does the local country react? One extreme is that the country

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purchasing organization instantly switches supplier because they report directly to the global procurement function, potentially causing write-offs of packaging already in stock. At the other extreme, the country organization knows where the real power sits (in the country President) and does nothing, preferring to work with their existing local supplier, thereby, missing out on better prices that were negotiated.

In addition to the fight over decision rights, there is also huge confusion over the timing of any change, and communicating the information to other parties involved. The sensible solution is to bring all such requests/instructions from the matrix organization into the Optimization process so that the im-

plications for all functions can be understood, and an agreed response across the organization can be developed.

## CONCLUSION

Many years ago I co-authored an article titled “Integrated Reconciliation—The Toughest Challenge.” While the language of Integrated Reconciliation may have moved on to Optimization, I believe the description is still valid. Early process steps in S&OP/IBP can be pretty functionally based, and most businesses have to have some sort of capability in these areas. Whether or not it is well integrated is quite another matter. By contrast, the Optimization process is new to most

businesses, and so will require changes in process, probably changes in systems applications and certainly changes in human behavior. Such changes should not be attempted lightly, and all involved should accept that it will take significant time and resources to develop the new way of working, especially if your choice is the second of the two versions of Optimization explained above. A final thought: although it is not impossible to evolve from managing the year-end number version of Optimization to the full concept, it is very difficult. So ensure that your leadership team understands the implications of the choices and then go with whatever works best for your organization.

**—Send Comments to: [JBF@ibf.org](mailto:JBF@ibf.org)**