

SALES AND OPERATIONS PLANNING

PART III: A DIAGNOSTIC MODEL

By Larry Lapidé

(This is an ongoing column in The Journal, which is intended to give a brief view on a potential topic of interest to practitioners of business forecasting. Suggestions on topics that you would like to see covered should be sent via email to llapide@mit.edu).

This column represents the last of a three-part series covering the Sales and Operations Planning (S&OP) process. As discussed in Part I, S&OP has been lately receiving a lot of attention as industry-wide studies and companies are recognizing its value in improving the tactical and operational planning to prepare the supply chain for meeting anticipated customer demand. S&OP appears to be driving supply chain benefits such as better meeting customer demand while at the same time resulting in reduced inventories and minimized supply chain operating costs.

In addition, an indicator of a longer term interest in the S&OP process is the fact that, according to AMR Research, companies have spent over \$12 billion in supply chain planning application software over the last 6 years. Yet while spending significant sums of money on the S&OP-related software, they are not seeing the benefits they expected because many did not change the process to fully leverage the enabling technology.

This last column in the series is designed to help users modify their S&OP processes to improve the execution and accuracy of their supply-demand plans, as well as to help users determine the appropriate enabling technologies needed to

support changes to the process. Since it makes sense to know where you are before you determine where you want to go, it recommends the use of a diagnostic tool called the S&OP Maturity Model. The model can be leveraged by users to help assess where their process is and the opportunities for improving it.



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WHY A MATURITY MODEL?

Process innovation and change are always difficult in any organization because it means changing:

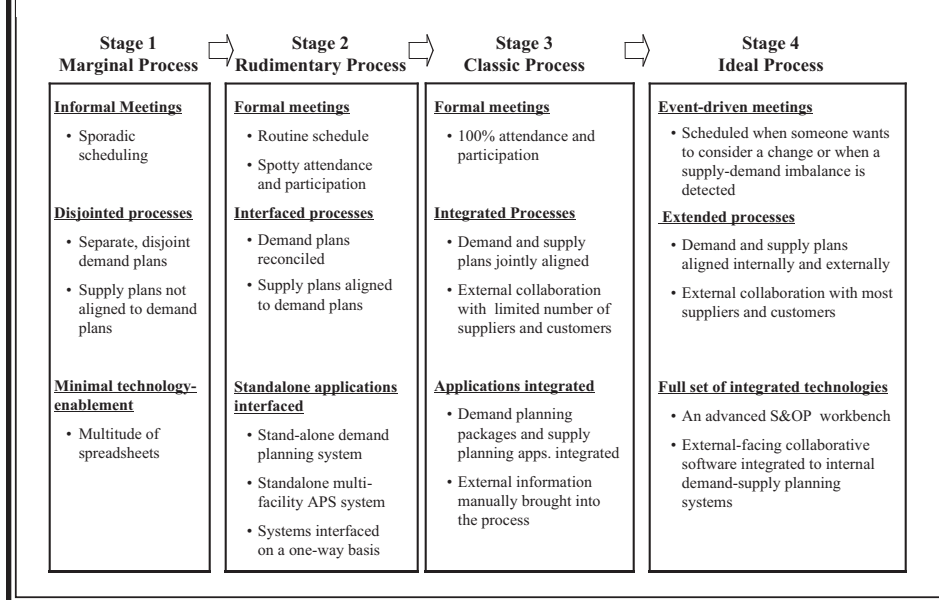
- The decision-making
- The information used to make decisions
- The tasks that need to be done
- The skill-sets of the people involved

These need to be identified first and then software technology needs to be chosen that best supports any changes.

Part I of this series dealt with the elements of an ideal S&OP process that are needed to get the most out of S&OP and ensure that its full benefits can be achieved. Part II described an Integrated Supply-Demand Planning Technology Architecture that would be needed to fully support this ideal S&OP process.

However, it is my experience that the S&OP process at many companies is a far cry from the ideal that was described. To move close to an ideal S&OP process companies would need to change significantly by following an evolutionary path determined in several steps. The first step would be to assess the "as-is" S&OP process in terms of the processes and enabling technologies currently being leveraged. This "as-is" process would then be compared to the ideal process described in Part I to identify any gaps that might exist. Lastly, a roadmap would need to be developed identifying what gaps would be addressed and when, in terms of the process changes needed and the enabling technologies to be implemented.

FIGURE 1
A FOUR-STAGE S&OP PROCESS MATURITY MODEL



S&OP MATURITY MODEL

Generally Maturity Models are useful in going through process innovation and change. These types of models are usually comprised of multiple stages in the advancement of a business process — with the first stage being the least advanced process and the last stage being the most advanced process. Often the last maturity stage is practically unachievable, hence it becomes the ideal to which companies strive to achieve, as well as is the benchmark over time against which to compare progress.

This column describes an S&OP Process Maturity Model comprised of the following four stages:

- Marginal Process
- Rudimentary Process
- Classic Process
- Ideal Process

I describe each stage below in terms of meetings held, demand and supply plan alignments, and enabling technologies used. (See Figure 1.)

Stage 1: Marginal Process. Companies

that have an S&OP process in Stage 1 have some type of planning processes going on but they tend to be less formal and sporadic, and often display a chaotic nature. This type of process can be viewed only marginally as a genuine S&OP process. Meetings that should be routinely held among cross-departmental participants to align supply and demand plans take place on a sporadic basis. Even if they are pre-scheduled they are frequently cancelled because participants state they have better things to do with their time. This type of S&OP process often exists because departments historically evolved focused on meeting their own goals, at times at the expense of other departments in a company. Companies with this type of S&OP process are referred to as “silos” companies where integrated supply chain management does not truly exist. The silos lead to the implementation of a Marginal S&OP process in which little support is given to it by executive management, and managers half-heartedly care about it.

Under this type of S&OP process there are disjointed planning processes taking place. Multiple demand plans are independently developed by the demand-

side organizations (e.g., the Marketing, Sales and Customer Service departments) for their own operational planning purposes. There is little attempt to develop a consensus demand plan with each other or with input from other departments in the company. In addition, multiple supply plans might be independently developed by the supply-side organizations (e.g., the Operations, Logistics and Finance departments), with little effort given to aligning them with each other or with the demand plans developed.

Very little software technology is needed to enable a Marginal S&OP process. Since plans are disjoint, each department and user can just use a spreadsheet to develop their isolated plans. Spreadsheet technology suffices when there is little concern that plans need to be tied together in some way. The spreadsheet-generated plans, however, are virtually impossible to tightly integrate if someone tries to do so. (One company confessed that they had almost one thousand spreadsheets being generated as part of their planning process — it definitely had a chaotic planning environment, with little hope of ever aligning everyone’s plans!)

Companies with a Stage 1 process need to begin to move to Stage 2 by first installing a more formal process that everyone agrees to support and participate in, and one in which some attempt is made to consolidate and harmonize the multitude of planning spreadsheets generated.

Stage 2: Rudimentary Process. Companies that have a Stage 2 S&OP process have formal planning processes going on, but they are not fully participated in and not fully integrated. This type of process has some of the very basic or rudimentary elements of an S&OP process. Meetings are scheduled and routinely held among cross-departmental participants to align supply and demand plans. However, attendance is spotty because participants randomly decide from time-to-time they have better things to do with their time that day. Also some that do religiously attend do so

half-heartedly by not preparing in advance of meetings and not interacting well with other attendees to collaboratively develop consensus-based plans.

Under this type of S&OP process the planning processes are interfaced. Multiple demand plans are developed by the demand-side organizations, however, they are shared with each other so each department knows what the other plans to do in order to synchronize operations. Meanwhile the supply-side organizations use synchronized demand plans to develop supply plans aligned with them — taking the demand plans at face value.

Since the demand and supply plans are separately developed, each organization uses their own standalone enabling software technology. Frequently, the demand-side organizations use Demand Planner software applications, the outputs of which are transmitted to the systems being used by the supply-side organizations. Meanwhile, the supply-side organizations use multi-facility Advanced Planning and Scheduling (APS) software applications to develop supply plans that are predicated on the demand plans shared with them. The supply plans generated are typically not transmitted to the demand-side systems.

Companies with a Stage 2 process can begin to move to Stage 3 by first getting executive management buy-in and then having the executives take action to ensure that S&OP meetings are seriously taken, and that people are well recognized for their participation. These companies should also begin to adjust both the supply and demand plans during the S&OP meetings to move closer to consensus-based integrated planning.

Stage 3: Classic Process. Companies that have a Stage 3 S&OP process have formal planning processes that follow the guidelines espoused by professional organizations such as APICS and training consultants such as Oliver Wight — as well as follow many of the basic elements I discussed in Part I of this series. This type of

process has all the by-the-book elements of an S&OP process. Meetings are routinely held and attended among empowered cross-departmental participants to align supply and demand plans.

Under this type of S&OP process the planning processes are integrated so that demand and supply plans are aligned jointly by demand-side and supply-side organizations. A single rough-cut demand plan is developed and brought into the S&OP meetings. In addition, a single rough-cut supply plan is aligned to the rough-cut demand plan, and it is also brought into the S&OP meetings. During the meetings, both rough-cut plans are adjusted; neither are fixed in concrete, and both are open for discussion by the cross-functional team attending.

In more advanced Stage 3 processes, collaborative information drawn from a limited number of major customers about their future demand needs is manually brought into the S&OP process. Possibly, collaborative information from a few critical-component suppliers that highlight scarce materials might also be brought into the S&OP meetings.

In this stage, the demand-side and supply-side software applications are integrated, since final demand and supply plans need to be jointly developed. For example, changes in a Demand Planner system need to be automatically incorporated into and reflected in the multi-facility APS systems; and vice versa.

Companies with a Stage 3 S&OP process can begin to move to Stage 4 by increasing the frequency of S&OP meetings and continuing to increase the number of collaborative relationships with suppliers and customers.

Stage 4: Ideal Process. A Stage 4 S&OP is a process that can never fully be achieved by any company, but should be used as a benchmark for guiding the continual improvement of the process. A Stage 4 process executes all the processes covered in Part I of this series extremely

well, and are enabled by the Integrated Supply-Demand Planning Technology Architecture described in Part II.

The S&OP meetings in this stage are event-driven. They are scheduled on-demand only when someone wants to change any of the existing plans or when a supply-demand imbalance is detected. This implies that the process is supported by systems that are constantly keeping track of supply and demand in real-time and when necessary, alerting everyone that is part of the S&OP process that they need to meet immediately. Meeting attendees or their proxies would need to be tracked down and notified that a meeting needs to take place as soon as possible. The meeting itself would be conducted on virtual basis so no one has to travel to get to it, thus enabling a global process.

An advanced S&OP Workbench system would need to be used to support the meetings with everyone having access to it on a global basis. The Workbench system would allow users to instantaneously evaluate any changes being discussed so the S&OP attendees can modify any supply or demand plans, and quickly see the implications of any changes. In the most advanced Stage 4 process, the S&OP Workbench system would re-optimize the plans and recommend the changes that need to be made to the demand and supply plans currently in place.

In Stage 4, processes are extended externally, so that collaborative information is drawn from most customers and suppliers, enabled by the use of Demand Collaborator and Supply Collaborator systems that are fully integrated to all the internal planning systems. In this way, S&OP plans are aligned not only on an internal basis, but also externally aligned with the plans of both suppliers and customers.

USING THE MODEL

The S&OP Maturity Model should be used as a diagnostic tool for helping a company improve its planning processes.

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Users should use the model to diagnose what stage they are currently in. (I believe most companies that think they have an S&OP process in place today will find that they are in either Stage 2 and Stage 3, or between them. Just a few of these will be surprised to find they really don't have much of an S&OP process at all, placing them in or close to Stage 1.)

Once the stage of a company's S&OP process is established, the company should look to move closer to the next stage. (Moving more than one stage is over-ambitious and will likely lead to failure.) Comparing the current processes to the processes of the next stage will identify the gaps that need to be closed over time. Initiatives aimed at closing each gap should be analyzed on a cost/benefit basis that accounts for the process and technology changes needed. Based on the analyses, the company should then develop a roadmap that specifies when each initiative would be undertaken. Generally a company should start with initiatives that give proven benefits in the shortest amount of time.

Using the S&OP Maturity Model may never get your company to Stage 4, but will help it move closer — yielding substantial benefits along the way. ■



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