S&OP, FORECASTING, AND THE KNOWLEDGE-CREATING COMPANY

John Mello and Terry Esper

PREVIEW

Organizational knowledge can serve as a competitive advantage for companies. John and Terry draw examples from audits of the forecasting process at many companies to demonstrate how firms can use sales forecasting and sales and operations planning to gather and refine information about changing business environments, create organizational knowledge, and transform that knowledge into actionable plans.

INTRODUCTION

The Sales and Operations Planning (S&OP) process is a cooperative, cross-functional effort within an organization. S&OP uses available market intelligence and key business performance metrics to synchronize demand and supply plans. Several research studies found that companies using a well-managed S&OP process outperformed companies that do not use the process well, or at all (Lapide, 2004).

Sales-forecasting audit teams from the University of Tennessee (UT) have sought to evaluate the S&OP practices of participating companies and provide insights on how the process can be improved. When we examined about 25 of these audits, we found that companies that have robust sales-forecasting processes operating within an S&OP framework have been more successful in achieving what we call organizational knowledge creation.

The purpose of this paper is to share with Foresight readers our insights into how a company can distinguish itself from its competitors by managing its S&OP process to nurture...
knowledge-creating opportunities. We will recommend ways a company can manage S&OP in order to create opportunities for individual and group judgments to be shared across functional areas of the company, leading to the incorporation of new knowledge into the organization’s operational activities and strategic planning.

THE KNOWLEDGE-CREATING ORGANIZATION
Knowledge has been described as “the one sure source of lasting competitive advantage” in an uncertain economy (Nonaka, 1991, p. 96). The ability to create new, actionable knowledge from information gathered in the marketplace helps set a firm apart from its competitors. A “knowledge-creating company” is one that transforms information from customers, exchange partners, and competitors into actionable knowledge. Sales forecasting is one activity that fosters such information-gathering. When a sales forecasting process designed to recognize changes in the business environment is embedded within an S&OP framework, a structure is in place to produce actionable knowledge from which business strategies, innovative products, and desirable services can be developed.

THE FOUR ATTRIBUTES OF LEARNING – THE 4 I’S
As depicted in Figure 1, organizational learning can take place at three levels: individual, group, and organization. In addition, it includes four attributes, which have been called the 4 I’s (Crossan et al., 1999). These are:

- Intuition
- Interpretation
- Integration
- Institutionalization

Intuition is the recognition of patterns and the realization of new possibilities. A sales representative should be able to discern patterns in evolving consumer tastes by listening to customer comments.

Interpretation is the refinement of ideas and insights to make them understandable. If sales representatives share their insights with other salespeople or with the company’s sales forecasters, they can validate or modify what they had learned from the customers.

Integration is the transformation of consensus on the implications of the information into collective action. If the salesperson’s ideas are brought forward in a forum – such as an S&OP meeting – where they can be evaluated by people from other areas of the company, the participants can discuss and act upon their assessment of the changes in consumer tastes.

Institutionalization is the establishment of routine actions – standard operating procedures – that allow new information to be embedded in an organization. A company could set up a formal process as part of the sales forecasting and S&OP meetings; this would enable individuals to bring forward new ideas where they will be refined, disseminated, and acted upon.

Figure 1 shows that learning occurs across multiple levels: from intuition at the individual level, through interpretation and integration at the group level, to institutionalization at the organization level. A knowledge-creating company is one that establishes an environment for the encouragement and perpetuation of the 4 I’s of organizational learning.
Although the main purpose of S&OP is to match supply and demand plans, a company that applies the 4 I’s of organizational learning to its S&OP activities can elevate the S&OP process from a coordinating mechanism to a knowledge-creating activity.

**THE 4 I'S IN THE S&OP CYCLE**

The standard cycle for S&OP includes five steps.

1. In an initial step, data are gathered and updated.
2. In a demand-planning phase, sales and marketing executives form and approve consensus forecasts.
3. In a supply-planning phase, planners identify changes in forecasts and inventory levels as well as key capacity issues.
4. In a preliminary meeting, attendees reconcile demand and supply plans.
5. In a concluding executive meeting, leaders incorporate the new S&OP plan into the company’s competitive strategy.

Within this S&OP process, a company can find many opportunities to practice the 4 I’s.

Individuals can be given the chance to:

- gather and analyze field information,
- form new ideas concerning the business environment (intuiting),
- share what they have learned about changes in customer requirements and competitors’ actions,
- refine ideas about market trends (interpreting),
- communicate what has been learned with other functional areas of the company (integrating), and
- incorporate new knowledge into the strategies and plans of the organization (institutionalizing).

Figure 2 depicts the linkages between organizational learning and the S&OP cycle.

**Intuiting:** The first step in the S&OP cycle involves collection of data and market intelligence on customers, suppliers, and competitors, as well as on general economic trends. Especially valuable information may be obtained from point-of-sale (POS) data sharing and collaborative planning, forecasting, and replenishment (CPFR). Participants in the UT sales forecasting audits indicated that inclusion of information coming directly from customers in this phase of the S&OP cycle allows sales forecasters to make more accurate judgments about changing business conditions.

Individuals who obtain information from sources outside their organization are in a better position to sense changes in the business environment. The first stage of the S&OP cycle presents opportunities for those individuals who are close to customers and consumers to see patterns or changes in demand, discuss the drivers behind the data, and potentially discern new trends in the market. For example, participants from a surgical supply company audited by UT pointed out that because their salespeople are able to gather information directly from surgeons, they began to think about trends in surgical procedures that would not otherwise be apparent.

This act of intuiting will allow ideas to be generated, but it is the next phase of the cycle in which the ideas can come to be embraced.

**Interpreting:** Knowledge generated by an individual has no bearing on a company unless “ideas are shared, actions taken,
and common meaning is developed” (Crossan et al., 1999, p. 524). The demand-planning phase of the S&OP process allows individuals to bring their ideas to a forum where they can be introduced, discussed, and distilled into useful knowledge. Using its intranet, one company set up a process in which sales forecasters could share their information with people in other functional areas in preparation for the S&OP meeting. Another firm reported that the interactions in the demand-planning phase of the cycle between marketing and sales representatives led to an understanding that plans to discontinue a product line were premature.

Integrating: During the integration phase, knowledge developed by individuals and refined by groups can be put into organizational planning and action. Several steps in the sales forecasting and S&OP processes lend themselves to integrating activities. During supply-planning:

- forecasts are translated into operational plans,
- new knowledge concerning the ability of operations to meet demand is generated, and
- warnings about prospective supply shortages are passed on to marketing and sales so that they can integrate this information into their sales plans.

Thus a two-way flow of knowledge is generated by the S&OP process, leading to actions on both the demand and supply side of the company. Such knowledge integration can result in changes in the marketing plans and subsequent production and distribution activities.

Knowledge can also be integrated at higher organizational levels. During the pre-S&OP meeting, participants strive for reconciliation of demand and supply plans. The adaptations and adjustments achieved here integrate the knowledge created at lower levels in the organization. But this meeting also offers the opportunity to present new knowledge to more senior managers.

For example, when the sales staff in one firm reported the continuing consumer desire for analog televisions, the company changed its marketing and manufacturing plans to support continued distribution of the older technology. Thus the S&OP pre-meeting provided an opportunity for knowledge integration at higher, more strategic levels.

However, in order for companies to truly leverage the learning of individual members, the process must progress to the next step – institutionalizing the learning process.

Institutionalizing: The process of institutionalizing learning distinguishes organizational learning from individual or group learning. As Crossan et al. (1999, p. 529) point out, while employees may leave an organization, what they have learned as individuals or in groups lives on “in the systems, structures, strategy, routines, [and] prescribed practices of the organization…. .” Such structures, routines, and practices establish opportunities for interaction between individuals, the benefits of which become embedded in the organization and come to represent the company’s understanding of its business environment.

At the executive S&OP meeting, decisions are made on issues where agreement could not be achieved at the pre-meeting, and the new sales and operations plan is evaluated against the company’s strategy and risk parameters. Companies report that participants in the executive S&OP meeting typically include directors and vice presidents of sales, marketing, operations, and finance. One company indicated that the S&OP process made the sharing of information occur at a much higher level than occurred before the process was put into place.

It is during this meeting that knowledge generated by individuals (intuiting), and refined at the group level (interpreting) can be integrated into corporate strategy (institutionalizing). For example, trends in consumer preferences identified during the first step of the S&OP process can be integrated into long-term corporate strategies for product innovation and marketing. Likewise, planned expansion activities by key customers could be used to plan future placement of factories and distribution centers.
So there are potentially wide benefits to companies who use their S&OP process to institutionalize organizational learning. In the next section we offer some recommendations to make this happen.

**KEY RECOMMENDATIONS**

How can an organization leverage the S&OP process in order to help foster knowledge creation? Here are our prescriptions:

[1] Train employees, such as sales and procurement personnel, to interact effectively with customers and suppliers by careful listening and questioning. The training should emphasize the importance of identifying trends in consumer preferences and marketing activities of competitors that will be valuable input to the sales forecast.

[2] Encourage employees to share their insights during the demand-planning and supply-planning meetings. These insights may have come from conversations with customers and suppliers, from analyzing POS data, from CPFR activities, and elsewhere. Regardless of the source, it is important that their ideas be shared with other knowledgeable employees so that they can be further refined.

[3] Ensure that ideas generated at lower levels of the company are given full consideration at the pre-S&OP and executive S&OP meetings. One way to do so is to schedule these discussions as the first agenda item for the meetings. It is critical that these ideas be vetted for possible integration into the company’s knowledge base.

[4] Publicly recognize and reward employees for ideas that result in improved organizational performance. Employees can be rewarded through awards dinners and announcements in company newspapers or on bulletin boards. Monetary rewards in the form of cash bonuses or awards of company stock are also appropriate but should be of sufficient size to be appreciated by employees.

**CONCLUSION**

The S&OP process provides an ideal structure, with set routines and practices that can foster individual and group interaction and ensure that knowledge originating with individual employees is disseminated throughout the organization. Each phase of the S&OP cycle affords an opportunity for critical refinement of the ideas, suspicions, or simply gut-feelings generated by individuals close to customers and consumers. Hence S&OP offers a framework for companies to institutionalize organizational knowledge.

Companies traditionally implement S&OP to align operations with short and long-range goals and to strike a balance between supply and demand. We have presented a new reason for utilizing an S&OP process: to facilitate knowledge creation, dissemination, and institutionalization. While the traditional goals of S&OP are reason enough for its implementation, the added benefits from knowledge creation should serve as an incentive to firms still without an S&OP process to consider putting one in place and for companies where the process is already in place to utilize it to further organizational learning.

**REFERENCES**

