



The **supply**review

Integrated business management is a means of managing all of the business resources via the sales and operations planning (S&OP) process. In part four of a six part series, John Schorr describes the supply review process which determines the supply capability to meet the demand

This series of articles has already addressed the first two steps of the S&OP process (see figure 1), the product development and the demand review meetings. The output of the product development meeting is the future direction of the product portfolio, and the output of the demand review meeting is a timely aggregate

unconstrained demand plan for both existing and new products which then becomes the basis for the integrated set of planning numbers used throughout the sales and operations planning process.

There are four constituent groups that participate in the supply review stage. The first is manufacturing

and production, which answers the question, “does the company have enough capacity to produce the required supply plan?” Next is the purchasing activity, which determines, “do the company’s suppliers have enough capacity to support the plan?” If the company plans to expand at a 30 percent rate,



for example, and the supplier can only advance at a 15 percent rate, the company’s growth rate will be limited to only 15 percent.

Logistics and distribution department representatives are also involved, who ask, “can we get enough trucks to move the product and do we have enough space to house the finished goods inventory?” The fourth constituent is the engineering and design group, which needs to know, “do we have enough support capacity to design the required changes to the product in an engineer-to-order business?”

During the supply review there are three supply chain tensions that need to be recognized and managed. Specifically, the supply organization has to maximize customer service, minimize inventory, and minimize operating costs. For success, a company must manage these three tensions simultaneously. However, in many companies, balancing these

Integrated Business Management – S&OP



Figure 1

three elements is very difficult.

The math of supply planning is fairly easy; however, developing the numbers can be very difficult. As an example, in a make-to-stock

company, the production plan equals the sales plan plus the ending finished goods inventory minus the beginning inventory:

$$\text{Production plan} = \text{sales plan}$$

Supply Review – RCCP Resource Graph

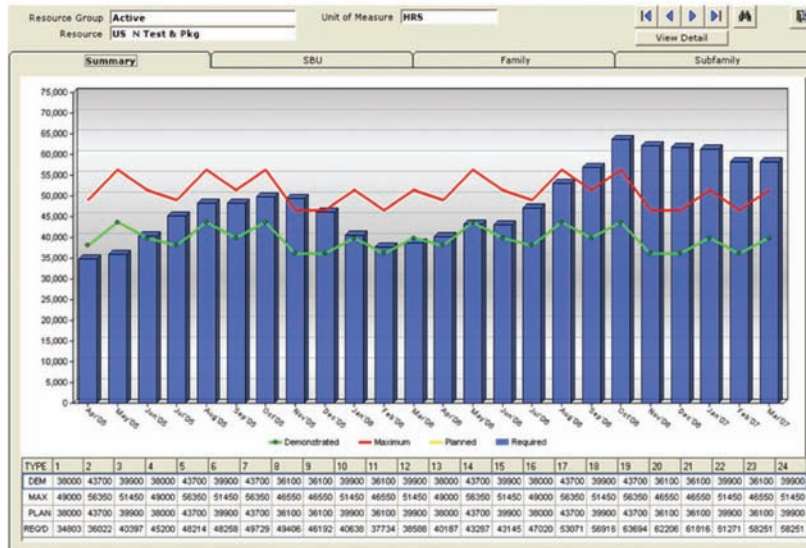


Figure 2

+ (ending inventory - beginning inventory)

If the sales plan is 1,000 and management wants to increase the inventory from 400 to 600, manufacturing must produce 1,200 units. Similarly, in a make-to-order company, the production plan equals the sales plan plus the beginning backlog minus the ending backlog. If the sales plan is 300 units for the month and management wants to lower the backlog from 50 to 30, manufacturing must produce 320 units. One of the difficult parts of developing the supply plan is determining the aggregate inventory level or aggregate backlog by family.

The key process in the supply step is rough cut capacity planning (RCCP). Sales and operations planning requires a common language between the sales and marketing demand plan and the manufacturing production plan. Typically, the sales and marketing

organization speaks in terms of customers, sales representatives, territory, brand, or market. Meanwhile, the manufacturing group prefers talking of resource or supplier. Rough cut capacity planning is the tool that translates the language of sales and marketing into the language of manufacturing (figure 2 shows a typical RCCP view).

The blue bars represent the required capacity needed per month (expressed in hours for this example) to support the demand plan plus changes in inventory levels. The green line is the demonstrated capacity, or what each work center is capable of producing under normal conditions. Demonstrated capacity is what the work center can produce given the typical product mix, staffing levels, efficiencies, downtimes, and material constraints.

The yellow line is planned

capacity. Planned capacity is based on demonstrated capacity adjusted by changes planned in the future. This would include a change in staffing levels, working overtime, adding equipment, or improving efficiency. The red line is the maximum capacity, which is the maximum a work center can produce without capital expenditure for equipment or facilities.

An analysis of figure two indicates that in months four through nine, either overtime will be necessary, or additional staff will be required to produce the required capacity. Starting in period 18, the required capacity exceeds the maximum capacity and requires management to decide whether to add capacity or restrict demand.

The supply review meeting traditionally follows the demand review meeting by a couple of days. Several inputs are required for the supply review. They include the business strategy, the manufacturing strategy, the demonstrated performance of the internal and external supply chain, hedging strategies, improvement plans, seasonality plans, as well as flex capacity potentials (figure 3). The assumptions made for each of these inputs are documented and recorded. The last two inputs needed for the supply review are the product development plans and the unconstrained forecast from steps one and two of the five step sales and operations planning process.

The supply review step is owned by the head of manufacturing, operations, or supply chain depending upon the company's protocol. It is facilitated by a supply manager whose role is to gather all the inputs together, critique the data prior to the meeting, and assemble an information packet that spells out the issues and options for everyone

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Figure 3

to review prior to the meeting.

This information packet, which is distributed to the scheduled attendees at least 24 hours before the supply review meeting, includes the rough cut capacity plans with issues and alternatives identified, inventory plans by family and in total with issues noted, performance measures, projected costs and identified gaps, and progress on major improvement plans to fill those gaps. Examples of performance measures in the supply review are the process robustness, first pass quality, production plan and master schedule adherence, supplier schedule adherence, demonstrated capacity by work center, and customer on-time-in-full shipment adherence.

During the supply review meeting, the attendees review and integrate all the inputs, and critique the data presented. The attendees jointly develop the assumptions around

materials, capacity, hedging strategies, etc. that will be used as the basis for the supply plan and discuss how those assumptions impact the plan. They also review past performance metrics and the changes to the product development plan and unconstrained forecast from the previous month and determine if those changes require revisions to the supply plan.

In sales and operations planning, the supply side is always expected to say “yes” to the demand plan presented. When the demand exceeds the maximum capacity of a work center or a supplier, for example, supply is expected to develop scenarios of how the gap can be filled. Typically, there are a few possible alternatives:

- Build new facilities
- Purchase new equipment, and/or
- Use third party manufacturers.

The supply side is responsible

for developing all of the possible alternatives, costing out each of the alternatives, identifying the issues accompanying each alternative, and then proposing the recommended alternative plan. The supply review meeting of the sales and operations planning process establishes valid supply plans and where gaps to the business and strategic plans exist, plans and actions are developed that will fill the gaps and execute the business plan of the company.

As it is management’s decision to add capacity or restrict sales, in the S&OP meeting, management will select the alternative plan that best fits the business strategy, business plan, and direction that has been established for the business.

The next article in the series will address the integrated reconciliation meeting and the management business review meeting. ■

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