

Effective Supply Chain Management

by Michael Donovan

The complexities of getting material ordered, manufactured and delivered overload most supply chain management (SCM) systems. The fact is, most systems are just not up to handling all the variables up and down the supply chain.

For years, it was thought that it was enough for manufacturers to have an MRP or ERP system that could help answer fundamental questions such as: What are we going to make? What do we need to make the products? What do we have now? What materials do we need, and when? What resources/capacity do we need and when?

Manufacturers need to know a lot more today to have a truly effective supply chain. There are a number of fundamental weaknesses in the old system logic. Many planning and scheduling systems in use today assume that lead times are fixed, queues do not change, queues must exist, capacity is infinite and backward scheduling logic will produce valid load profiles and good shop floor schedules. These assumptions are totally illogical, and following them causes many schedule compliance problems. An effective fix is first to streamline operations and then to apply predictive, preventive forms of advanced planning and scheduling.

SCM involves two flows. Information flow signals the need to start the flow of material. In a supply chain, the fast flow of high-quality information and material is inextricably linked and of paramount importance to SCM success. Untimely or low-quality information virtually guarantees poor performance.

Manufacturers need to develop flexible supply chain processes that can adapt to the needs of various customer segments. They must also develop supply chain strategy, processes and supporting systems that conform to current and future requirements.

Generally, an effective SCM approach must focus on:

- Flexible supply and production processes that can very quickly respond to changing customer demand
- A short-cycle, demand-driven order-to-delivery process
- Accurate, relevant information that is available on demand throughout the supply chain

Throughout the supply chain, there are some absolutely critical and predictive questions your system should accurately and quickly answer:

- When *will* specific orders *really* ship?
- Which orders *will* be late?
- Why *will* these orders be late?
- What are the specific problems that *are* delaying the schedule?
- What are the *future* schedule problems and *when* will they occur?
- What *is* the best schedule that can be executed now?

If management can answer predictive questions, its decisions will greatly improve. Preventive actions can offset what were once unforeseen problems. The supply chain will be managed more effectively and improve chances of gaining a competitive advantage.

In the early 1980s, with the introduction of just-in-time production to the United States, many were convinced that pull signals (kanbans) and instant material deliveries would eradicate the need for MRP. The announcement of MRP's death was premature, except for firms with simple products and absolute control of supplier deliveries. Those with more complex products requiring more supply sources for more parts discovered that longer lead times and demand and supply variability were still issues to be dealt with.

Simply put, the more diverse your product line and the more complex your products, the more valuable MRP is for planning raw material needs. This is not to say pull logic is not use-

ful for raw material planning, because it is. Yet for most, it is not necessary (or desirable) to put every part number from every supplier on a pull system.

Scheduling production with MRP push logic, however, is like pushing a rope. You don't know what direction it will go. Pull systems will eventually dominate the entire supply chain—to customers and from suppliers, as well as internal material movement. Yet, MRP can, and must, coexist with pull scheduling.

Cycle time compression should be the first objective in the order-to-delivery process. Midrange manufacturers often have limited clout with suppliers, making across-the-board mandatory lead-time reductions unlikely. While there are many ways to work out mutually beneficial and necessary improvements with suppliers, the real enemy is time. The alternative is to work selectively on supply improvements while using a rationalized inventory deployment strategy to support the first objective—reducing order-to-delivery cycle time.

Good collaborative forecasting, good planning and realistic replenishment scheduling are essential to effective SCM. Further improvements come from redesigning supplier links to make them firm, fast and flexible for the benefit of the entire supply chain. During the transformation, companies have learned the value of minimizing cycle time and having predictable schedules, especially with mass customization. Both are necessary for effective supply chain performance. ♦



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