

Advanced Planning and Scheduling Consultant's Guide

Competitive pressures are forcing many manufacturers to quote ever-shorter lead-times, to offer ever-changing options and to ensure ever-higher levels of on-time delivery. Furthermore, they are being challenged to perform without excessive inventory, without increasing costs and without what later turns out to be too much of the wrong capacity. Many are turning to advanced planning and scheduling systems (APS) for help.

What is APS?

APS explicitly and simultaneously considers a plant's limited capacity and limited material when promising delivery, planning production, planning material, planning capacity, and dealing with changes and problems. APS projects the realistic effect on delivery, utilization, and inventory of new orders, order changes, material problems, production problems, vendor problems, and business changes.

APS also possesses sophisticated what-if features. These features let management teams quickly combine formal data (e.g., orders, routings, inventory, bills-of-material, and capacity limits) and intuition (i.e., what-if ideas). APS allows them to select the best what-if ideas to continuously balance what's good for business with what's good for customers, as they encounter changes and problems with increasingly complex tradeoffs. The what-if features of APS often provide significant visibility and flexibility improvements over reports, staff meetings, wallboards, and spreadsheets commonly used to project, simulate, and fix ever-increasing problems.

Management teams can use APS standalone for planning, order promising, scheduling, and capacity management. APS can also be easily integrated with business systems. APS enables better use of valuable business system data to overcome the finite capacity planning and scheduling limitations inherent in business systems.

What are the benefits of APS?

Many management teams have found that adding APS to their business system saved them the cost, time, and disruption of replacing their business system to improve competitiveness. In many cases, it helped them boost the return from their business system investment as well. They used their business system data, the sophisticated APS what-if features, and the improved visibility and flexibility provided by APS to simultaneously increase sales revenues, lower costs, and tie up less capital in their businesses.

Who can benefit from APS?

APS can help manufacturers engaged in build-to-order production (i.e., actual orders, forecasted demand, or both). These types of manufacturers often represent the component or subassembly portion of the original equipment manufacturing supply chain. For build-to-order manufacturers, changing conditions make cost-effectively balancing competitive lead-times and high on-time delivery levels, against the efficient use of limited or finite assets (e.g., machines, tools, labor, and material), both crucial and difficult. Moreover, ever-increasing manufacturing complexity and ever-increasing problems and changes are making it evermore difficult for the build-to-order manufacturer to manage with existing management methods and tools.

How does APS fit with ERP/MRP II?

Many manufacturers have invested significant amounts of time and money both in implementing ERP/MRP II and in collecting and maintaining the data needed to drive it. Rather than replacing ERP/MRP II, APS allows companies to continue to leverage their ERP/MRP II investment at both the master schedule and production control levels. APS uses business system data to explicitly and simultaneously considers a plants limited capacity and limited material as they promise delivery, plan production, plan material, plan capacity, and deal with changes and problems.

Which should be implemented first, ERP/MRP II or APS?

If a company has decent routing and bill of material data, APS can typically be added and implemented in a matter of weeks. It takes much longer to get benefits from most ERP/MRP II systems. Therefore, getting APS running before ERP/MRP II will often allow companies to get a return on their software investment almost immediately. Also, implementing APS will typically help companies highlight necessary data requirements and help establish the momentum that is so critical to a successful ERP/MRP II implementation.

What are the risks of APS?

As with any new technology, there are bound to be changes to achieve the benefits. With change comes risk. APS risk can be divided into two broad categories, migration and integration. That is, migration from existing manual or automated capacity management and delivery promising methods to the use of APS, and integration of APS with new or existing computer systems, paper work systems, or operating procedures.

How can my clients and practice benefit from APS?

Your current and future clients can likely benefit from APS, but they need your help. As was the case with ERP/MRP II some years ago, APS is a new manufacturing technology. Your clients need you to educate them about APS and how it fits in their specific environment. Once you educate your clients, their need for assistance doesn't end. In all but the smallest of operations, APS must be integrated with existing manufacturing systems and into existing operating procedures. In addition, continuous improvement projects must be tested and implemented.

How can I learn more about APS?

Increasingly, manufacturers are turning to consultants for help to manage the risks and achieve the benefits of APS. Waterloo Manufacturing Software provides ways for consultants to learn more about APS. The following lists some helpful papers. You can obtain additional information by contacting Waterloo Manufacturing Software.

Gilman, Andrew R., "Interest in Finite Capacity Technology Is Growing...Why?" APICS The Performance Advantage, August, 1994.

_____ "MRP-4U?" APICS The Performance Advantage, March, 1995.

Murgiano, Charles J., "Justifying Finite Capacity Technology" (Scientific Computing Conference Technical Paper), 1991.

_____ "Finite Capacity Management Improves Customer Service" (SME Technical Paper, MS92-349), 1992.

_____ "Competitive Advantage Through Cost Effective On Time Delivery" (APICS International Conference Technical Paper), 1993.

_____ "Short Lead Times = Tall Profits" (APICS International Conference Technical Paper), 1994.