

The crucial scope of plant scheduling

Production scheduling is one of the most important disciplines within process manufacturing. Crucially, the scheduler is the linchpin to customer satisfaction and operational efficiency. Daily decisions made in this vital function influence outcomes, including what to make and when, which ultimately impacts customer orders and bottom-line profitability. When industry leaders look to gain every possible competitive advantage in business, scheduling is a key area that needs to be given greater precedence. With every corrective and timely adjustment to the manufacturing schedule, the scheduler delivers enormous benefits, including high levels of customer service and responsiveness, fulfilling order commitment promises, manufacturing cost savings and optimised inventory management.

Frequently fluctuating production, restrictions in material transport and storage, unforeseen customer demands, changes to plans and complexity are just some of the daily, around-the-clock challenges for plant schedulers today. The continual management of constant change places tremendous pressure on schedulers to ensure they keep the

operation running according to plan and meet internal and external commitments. With the increasing complexity in today's market, executives need to view scheduling as a vital part of the business decision-making process and elevate its status within the organisation. Investment in the discipline and empowering schedulers with specialist cutting-edge software has shown to reap an enormous uplift in production efficiencies and overall profitability whilst simultaneously driving improvements in customer service levels.

What-if?

Many organisations experience late shipments and production problems due to poor scheduling. Detailed schedules can be difficult to create and update when using the wrong tools and in many situations, problems occur at the scheduling level due to an inability to easily visualise the immediate cause-and-effect consequences of schedule changes and their longer term ripple effects into the future.

Schedulers need to be able to react quickly, consider multiple 'what-if' scenarios and adjust their production schedules accordingly in order to

ROCH GAUTHIER
Senior Director
Product Management

DR. WARREN BECRAFT
Senior Principal Business Consultant
AspenTech

keep production aligned to the plan and achieve customer and internal stakeholder commitments. Poor production scheduling can result in huge losses. The majority of schedulers use less powerful solutions, such as Excel spreadsheets, which may have been adequate in the past, but struggle to meet the needs of companies looking to distinguish themselves in the marketplace by being a responsive and reliable supplier to their customers. Typically, the scheduler spends many unproductive hours creating an initial weekly schedule and expending additional time every day manually modifying and adjusting the schedule in response to actual production and logistical events and changes in demand. With limited time and cumbersome tools, most schedulers' goal is to develop a feasible near term schedule. Additionally, the inability to see the whole production picture results in ambiguity for setting an effective operational strategy. A myopic view of future events prevents the scheduler from identifying medium to longer term potential issues. However, an improved schedule looks out weeks or months into the future and brings enormous benefits, including the ability to identify and resolve issues well in advance before they become critical problems.

Decision support software, such as production scheduling applications, deal with key questions, including "what will happen or what must happen in the future?" Determining these situa-





tion variables is accomplished through the use of “what-if” scenario analysis performed by the scheduler. It is the scheduler who makes his or her best call based on the findings and selects the best course of action to take. When a disruption occurs, the scheduler is frequently drawn into coping with emergencies and attempting to correct the problem in hand without fully considering the complete economic and operational consequences of the corrective measures. This fire-fighting culture is inefficient and results in unproductive time and efforts, which would be better used to focus on analysing additional scenarios and making better decisions.

Faster and smarter scheduling

The goal of planning is to determine “what/where/when/how to supply” and “which demands to meet” within the constraints of a manufacturer’s supply capabilities. Monthly production targets established by planners are handed over to schedulers who work on determining the detailed sequence of production and the synchronisation between production stages to deliver feasible material flow and efficient production within the

constraints of a manufacturer’s production capabilities. Advanced scheduling tools provide an intuitive user interface that bridges the gap in usability and skills to support schedulers who can perform “what-if” scenarios and easily make use of optimisation methods to create schedules. Optimised schedules help make the most of available production capacity, increasing throughput from the plant facilities whilst ensuring high levels of customer service.

With advanced and easy-to-use scheduling tools, companies can navigate supply chain complexity and respond faster to changing market demands and unforeseen events. With the right scheduling software, manufacturers can also experience significant benefits in the areas of increased throughput, reduced transition and setup costs, reduced inventories and the reduction of expediting costs. Schedulers report significant time savings and productivity gains compared to traditional spreadsheet based approaches.

Optimising customer service

Process manufacturers are under tremendous pressure to maximise pro-

ductivity from their plant assets. Today’s volatile market environment and complex production processes require advanced plant scheduling software solutions to react quickly to production upsets and demand changes. An intuitive scheduling tool simplifies the user experience and streamlines workflows to provide easy access to vital plant data, which schedulers need to achieve process manufacturers’ plans. Unlike less powerful solutions, such as Excel, advanced scheduling tools open a world of opportunities for schedulers to realise numerous benefits, including reduction in manufacturing costs, reduction of inventory levels, better responsiveness to operational problems and better customer service.

Scheduling is the linchpin to customer satisfaction. This vital function provides process manufacturers with the ability to efficiently manage their production assets. Viewing the role of scheduling with greater importance is the first step in closing the likely gap between the sales and operations planning (S&OP) process and manufacturing execution processes.