

ADVANCED PLANNING AND SCHEDULING TECHNOLOGY PAPER



Advanced Production Scheduling Software: Use it to Extend Your Decision Making Horizons

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Short Term Scheduling

The production scheduling process controls how your company allocates resources (capital, labor, purchased material) to meet customer needs. In manufacturing environments, it is a primary mechanism by which you build product, and commit costs. With this said, production scheduling means many different things to different people. Some companies take a longer range views. In other environments, the production scheduling process has a decidedly short range focus. In these situations, production schedulers concern themselves with what is going to run this shift, this day, and, sometimes, this week.

Short term scheduling is important. Poor decisions on how work is sequenced can hurt efficiency and lead to unhappy customers. The process can be time consuming and error prone. But in most environments, you can solve the problem by throwing people at it. We've seen companies divide up their operations among multiple schedulers. Armed with tools such as ERP system shop floor control modules, Excel spreadsheets, or pads and paper, the job can usually get done, albeit not without significant costs in manpower and aggravation.

Advanced Production Scheduling in the Short Term

Advanced production scheduling software can streamline the short term scheduling process. It can reduce scheduling manpower, it can prevent jobs from being "lost", it can help eliminate poor sequencing decisions, it can improve your shop floor's efficiency, and it can improve customer delivery. These benefits can be significant, and are usually enough to more than justify the purchase of advanced production scheduling software. However, by not expanding your time horizons, both figuratively and literally, you are leaving money on the table.

Longer Term Decisions

Think about the planning and scheduling related decisions your company makes outside of the short term. Examples of these kinds of decisions might be:

1. What lead times and delivery dates should we quote to our customers?
2. What should our work hours be (e.g. should we add or subtract shifts, should we work overtime)?
3. How should we be working in prototype work, or

- scheduling preventative maintenance?
4. Should we be hiring or reducing staff?
5. What should our target inventory levels be?
6. Should we be pulling production forward, or pushing it back, to level forecasted loads?
7. Should we be outsourcing production, or bringing production back in house?
8. Should we be maintaining our existing production processes, or should we be investing in new manufacturing processes and procedures?
9. Should we be investing capital in new production equipment or even in new plants?

Clearly the short term decisions you make on a day by day basis are important. However, longer term decisions like the ones listed above involve the commitment of more cost on the part of your company. They also typically have a bigger impact on your company's profitability and, if you get them wrong, even survivability.

Visibility in Medium and Long Term Decision Making

So, how can you make sure that your company is making the best possible decisions in the medium to long term? Wouldn't it be great if you could peer into the future and see the impact of various decisions before you make them? Ideally, you should be able to get this visibility using the same production scheduling approach both for short term scheduling and for longer term decision making. All you should need to do is extend the horizon. However, if you are an operation of any size, this is easier said than done using manual methods. Short term you can usually schedule manually with people and elbow grease. As you extend the planning and scheduling horizon, though, there are just too many variables involved and too many calculations needed.

Advanced production scheduling software can consider the numerous variables involved, harness the computational power of computers, and give you the visibility you need to make better decisions. It considers the finite or limited capacity of your organization. It considers your work load, selling prices and costs. As advanced production scheduling software loads work on your limited capacity, it shows you when work will finish relative to its due date, when revenue will be booked, and when costs will be incurred.

Think outside the box! Advanced production scheduling

software can do much more than schedule in the short term. It can give you the visibility to make better decisions throughout the planning and scheduling horizon, dramatically lowering costs, increasing customer service, and improving profitability.

About the Author

Charles J. Murgiano is a principal with Waterloo Manufacturing Software. He has had more than ten years experience helping clients apply manufacturing decision support software. Mr. Murgiano received his MBA, Masters in Engineering in Operations Research and BS in Mechanical Engineering from Cornell University. Mr. Murgiano is active in the American Production and Inventory Control Society and is certified in production and inventory management by this organization.

More Information

This Paper is being provided with compliments from Waterloo Manufacturing Software. For more information about Waterloo Manufacturing Software's advanced finite capacity planning and scheduling system, TACTIC, Mr. Murgiano's other papers, contact:

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